Pacific Marine Science Report 76-16





# OCEANOGRAPHIC OBSERVATIONS AT OCEAN STATION P

## (50° N., 145° W.)

## Volume 70

## 5 December 1975 – 11 January 1976



INSTITUTE OF OCEAN SCIENCES, PATRICIA BAY
Victoria, B.C.

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ABSTRACT

Physical, chemical and biological oceanographic observations are made from the weathership at Ocean Weather Station Papa, and between Esquimalt and Station Papa, on a routine continuing basis. Physical oceanography data only are shown, including profiles obtained with bottle casts, and conductivity-temperature-pressure instruments. Surface observations are also shown.

## INTRODUCTION

Canadian operation of Ocean Weather Station P (Latitude 50°00'N, Longitude 145°00'W) was inaugurated in December 1950. The station is occupied primarily to make meteorological observations of the surface and upper air and to provide an air-sea rescue service. The station is manned by two vessels operated by the Marine Services Branch of the Ministry of Transport. They are the *CCGS Vancouver* and the *CCGS Quadra*. Each ship remains on station for a period of six weeks, and is then relieved by the alternate ship, thus maintaining a continuous watch.

Bathythermograph observations have been made at Station P since July 1952. A program of more extensive oceanographic observations commenced in August 1956. This was extended in April 1959 by the addition of a series of oceanographic stations along the route to and from Station P and Swiftsure Bank. These stations are known as Line P stations. The number of stations on Line P has been increased twice and now consists of twelve stations (Fig. 1). Bathythermograph observations and surface salinity sample collections, in addition to being made on Line P oceanographic stations, are also made at odd meridians at 40', i.e. 139°40'W, 141°40'W, etc. These stations are known as Line P BT stations. Data observed prior to 1968 has been indexed by Collins *et al.* (1969).

The present record includes hydrographic and continuously sampled STP data collected from the *CCGS Vancouver* during the period 5 December 1975 to 11 January 1976.

All physical oceanographic data have been stored by the Canadian Oceanographic Data Centre (CODC), 615 Booth Street, Ottawa, Ontario, Canada. Requests for these data should be directed to CODC.

Biological and productivity data are published in the Manuscript Report series of the Fisheries Research Board of Canada (FRB), Biological Station, Nanaimo, British Columbia, Canada. Requests for these data should be directed to FRB.

Marine geochemical data are for the Ocean Chemistry Group, Ocean and Aquatic Sciences, Environment Canada, 512 - 1230 Government Street, Victoria, British Columbia, Canada.

## PROGRAM OF OBSERVATIONS FROM CCGS VANCOUVER, 5 December 1975 - 11 January 1976 (P-75-9) (CODC Ref. No. 15-75-009)

Oceanographic observations were made by Mr. B.L. Twaites of CHEMEX Labs Ltd., North Vancouver, B.C.

En route to Station P, Line P Stations 1 to 5 and 12 were occupied and a STP profile made to near bottom or 1500 metres.

Samples for salinity, nitrate, nutrient, alkalinity and total $CO_2$ were taken from the seawater loop at these stations.

All other stations were missed due to late sailing.

Surface tarball tows were made at Stations 2 and 4.

The thermosalinograph and the surface temperature recorder were run continuously.

Mechanical BT or XBT's were taken at all Line P and BT stations.

At Station P the oceanographic program was carried out as follows:

I. Physical Oceanography

1) Profiles of salinity, temperature and oxygen were obtained from 5 hydrographic stations to near bottom (4200 metres).

2) 25 STP profiles to 1500 metres and 1 to 375 metres were obtained.

3) BT's were taken every three hours to coincide with meteorological observations, encoded and transmitted according to the IGOSS format.

4) Salinity samples daily at 0000 hrs GMT from the seawater loop.

II. Marine Geochemistry

1) Nutrient samples were collected daily at 0000 hrs GMT and once every hour for a 24 hour period from the seawater loop.

2) Alkalinity and total $CO_2$ samples every three days from the seawater loop.

3) Air $CO_2$ samples weekly in quadruplicate.

4) 6-surface tarball tows.

5) 2 seawater C-14 samples were extracted from 45 gallons of seawater taken from the seawater loop.

6) Hydrocasts for nutrients, alkalinity, total $CO_2$, and tritium.

III. Biological and Productivity

Samples were obtained as follows:

1) 5 - 150 metre vertical plankton hauls.
   2 - 1200 metre vertical plankton hauls.

2) Samples for plant pigment, nitrate and $C_{14}$ productivity were obtained from two hydrocasts to 200 metres.

En route from Station P, all line P stations were missed. The ship left Station P three days ahead of schedule on a course North of Line P, to enable a rendezvous with a helicopter for an emergency evacuation of an injured seaman.

Samples for salinity, nitrate, nutrient, alkalinity and total $CO_2$ were taken from the seawater loop at 6 positions.

XBT's were taken at 16 positions.

The thermosalinograph and the surface temperature recorder were run continuously.

## IV. Observations for Other Agencies

1) Marine mammal observations were made by the ship's officers for Mr. I. McAskie, Fisheries Research Board of Canada, Biological Station, Nanaimo, B.C., Canada.

2) Bird observations were made by the ship's officers for Dr. M. Myres, University of Alberta, Calgary, Alberta, Canada and Mr. J. Guiguet, Curator of Birds and Mammals, Provincial Museum, Department of Recreation and Conservation, Victoria, British Columbia, Canada.

3) Air $CO_2$ samples weekly in duplicate for Scripps Institution of Oceanography, La Jolla, San Diego, California, U.S.A.

Data was processed for publication by Messrs. C. de Jong, B. Minkley and E. Luscombe.

## OBSERVATIONAL PROCEDURES

Temperatures at depth were measured by deep-sea-reversing thermometers of Richter and Wiese and/or Yoshino Keiki Co. manufacture. Two protected thermometers were used on all bottles, and one unprotected thermometer was used on each bottle at depths of 300 m or greater. The accuracy of protected reversing thermometers is believed to be ± 0.02°C.

Surface water temperatures were measured from a bucket sample using a deck thermometer of ± 0.1°C accuracy.

Salinity determinations were made aboard ship with either an Auto-lab Model 601 Mark III inductive salinometer or a Hytech Model 6220 lab salinometer. Accuracy using duplicate determinations is estimated to be ± 0.003°/₀₀.

Depth determinations were made using the "depth difference" method described in the U.S.N. Hydrographic Office Publication No. 607 (1955). Depth estimates have an approximate accuracy of ±5 m for depths less than 1000 m, and ±0.5% of depth for depths greater than 1000 m.

The dissolved oxygen analyses were done in the shipboard laboratory by a modified Winkler method (Carpenter, 1965).

Line P engine intake continuous temperatures were recorded by a Honeywell Electronik 15 Recorder. The temperature probe is at a depth of approximately 3 metres below the sea surface and the instrument accuracy is believed to be ± 0.1°C.

Each ship is equipped with a Plessey Model 6600-T thermosalinograph which is used, on Line P, for continuous recording of surface temperatures and salinities from the ship's seawater loop. The temperature probe is mounted at the seawater loop intake (approximately 3 metres below the surface) and the salinity probe and recorder are situated in the dry lab. The accuracy of this instrument is believed to be ± 0.1°C for temperature and ± 0.1 ‰ for salinity.

STP profiles were taken with a Plessey Model 9006 STP system.

## COMPUTATIONS

All hydrographic data were processed with the aid of an IBM 360 computer. Reversing thermometer temperature corrections, thermometric depth calculations, and accepted depth from the "depth difference" method were computed. Extraneous thermometric depths caused by thermometer malfunctions are automatically edited and replaced. A Calcomp 565 Offline Plotter was used to plot temperature-salinity and temperature-oxygen diagrams, as well as plots of temperature, salinity, and dissolved oxygen vs $\log_{10}$ depth. These plots were used to check the data for errors.

Missing hydrographic data were obtained using a weighted parabolas interpolation method (Reiniger and Ross, 1968). These data are indicated with an asterisk in this data record.

Data values which we suspect but which we have included in this data record are indicated with a plus. These data have been removed from punch card and magnetic tape records.

Analog records from the salinity-temperature-pressure instrument have been machine digitized, then replotted using the Calcomp plotter.

Digitization was continued until original and computer plotted traces were coincident. Temperature and salinity values were listed at standard pressures; integrals (depths, geopotential anomaly, and potential energy anomaly) were computed from the entire array of digitized data.

The headings for the data listings are explained as follows:

| | |
|---|---|
| PRESS | is pressure (decibars) |
| TEMP | is temperature (degrees Celsius) |
| SAL | is salinity (parts per thousand) |
| DEPTH | is reported in metres |
| SIGMA-T | is specific gravity anomaly |
| SVA | is specific volume anomaly |
| THETA | is potential temperature (degrees Celsius) |
| SVA (THETA) | is potential specific volume anomaly |
| DELTA D | is geopotential anomaly (J/kg) |
| POT EN | is potential energy in units of $10^8$ ergs/cm$^2$ |
| OXY | is the concentration of dissolved oxygen expressed in millilitres per litre |
| B-V PERIOD | is the Brunt-Vaisala period in minutes |

## REFERENCES

Carpenter, J.H., 1965. The Chesapeake Bay Institute technique for the Winkler dissolved oxygen method. Limnol. and Oceanogr., 10: 141-143.

Collins, C.A., R.L. Tripe, D.A. Healey and J. Joergensen, 1969. The time distribution of serial oceanographic data from the Ocean Station P programme. Fish. Res. Bd. Can. Tech. Rept. No. 106.

Reiniger, R.F. and C.K. Ross, 1968. A method of interpolation with application to oceanographic data. Deep Sea Res., 15: 185-193.

U.S.N. Hydrographic Office, 1955. Instruction manual for oceanographic observations, Publ. No. 607.

## LIST OF FIGURES

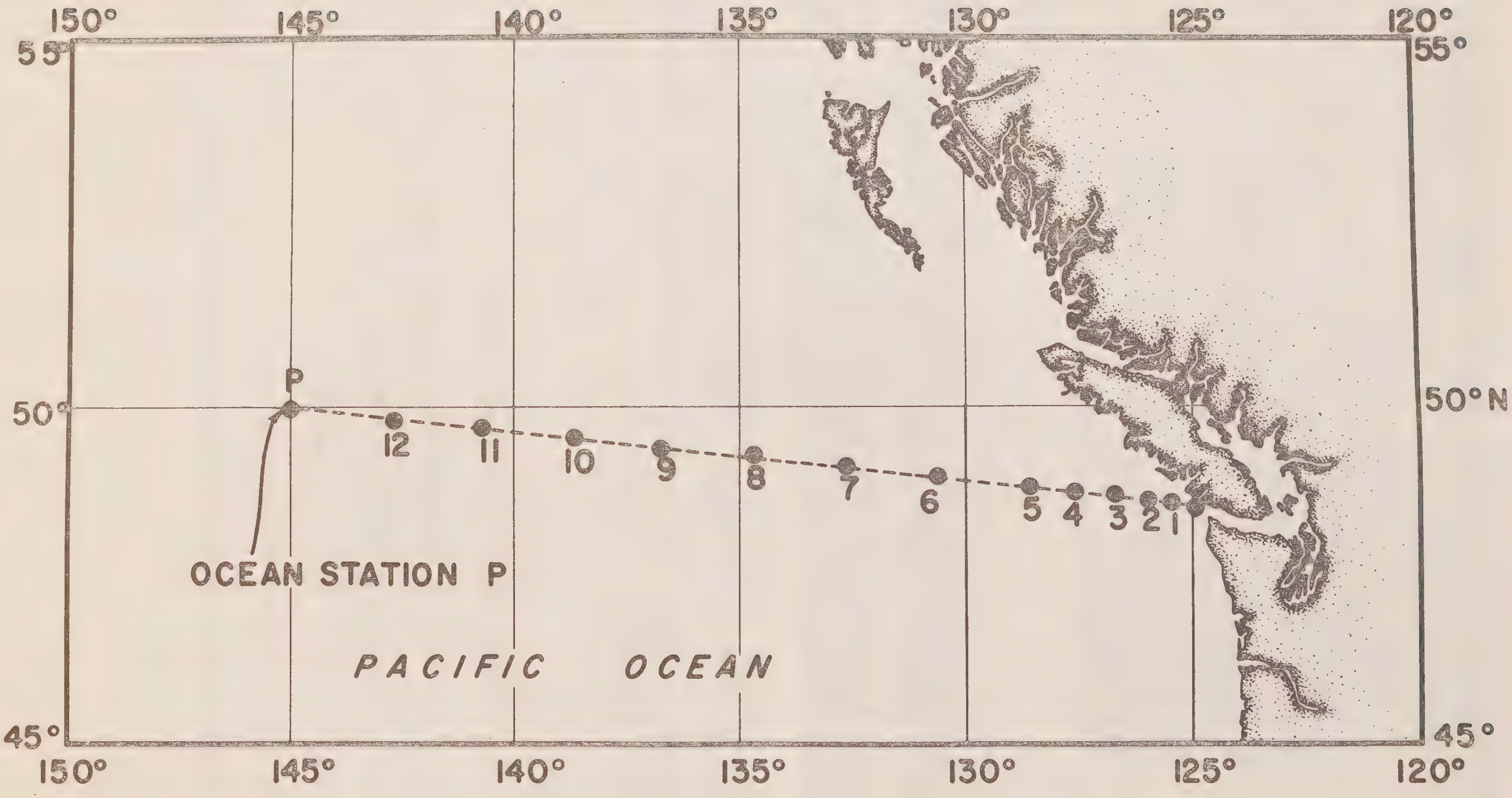



Fig. 1 Chart showing Line P station positions.

OCEANOGRAPHIC DATA OBTAINED ON CRUISE P-75-9

(CODC REFERENCE NO. 15-75-009)

# RESULTS OF HYDROGRAPHIC OBSERVATIONS

(P-75-9)

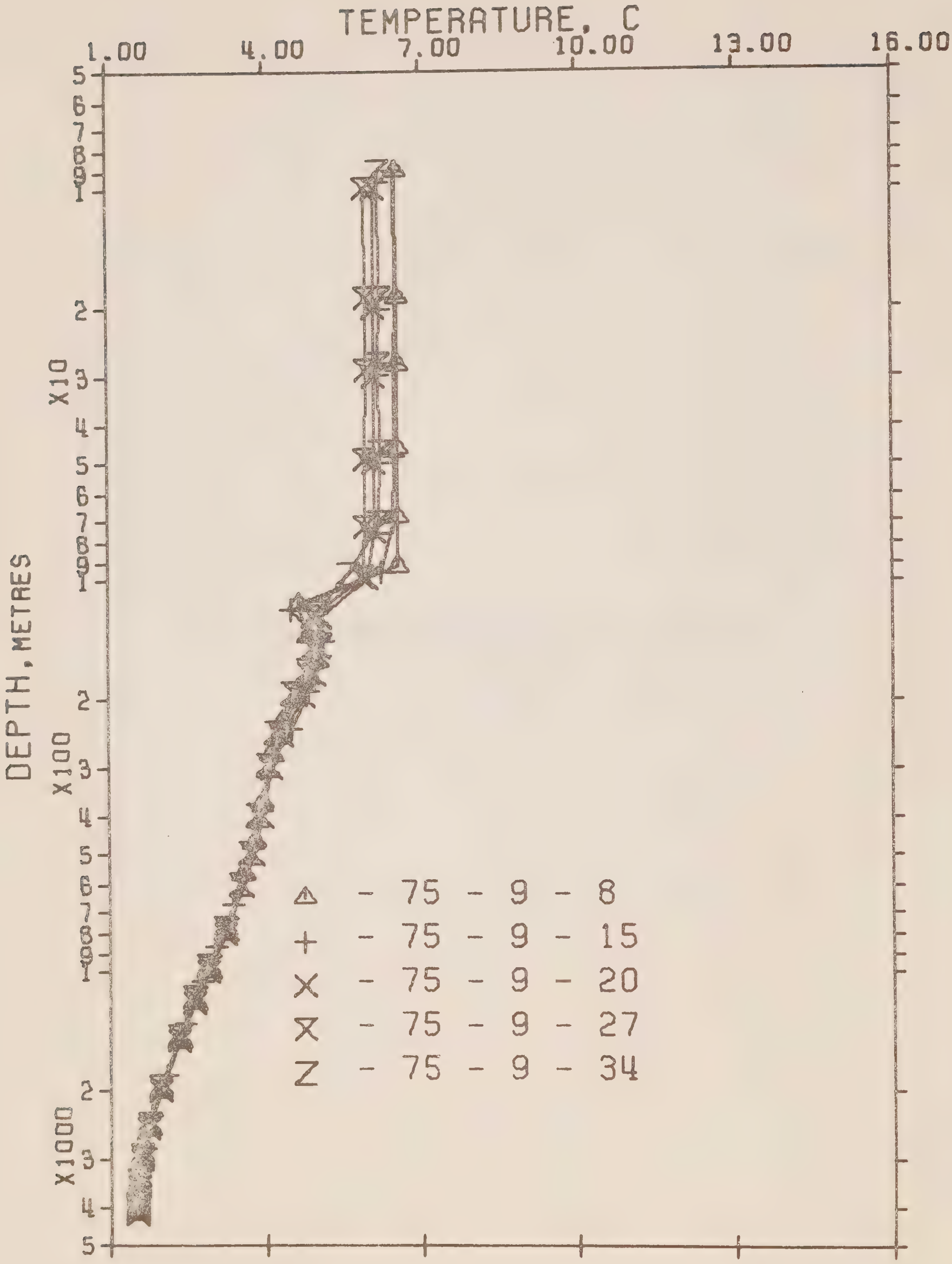



Figure 2. Composite plot of temperature vs $\log_{10}$ depth. P-75-9

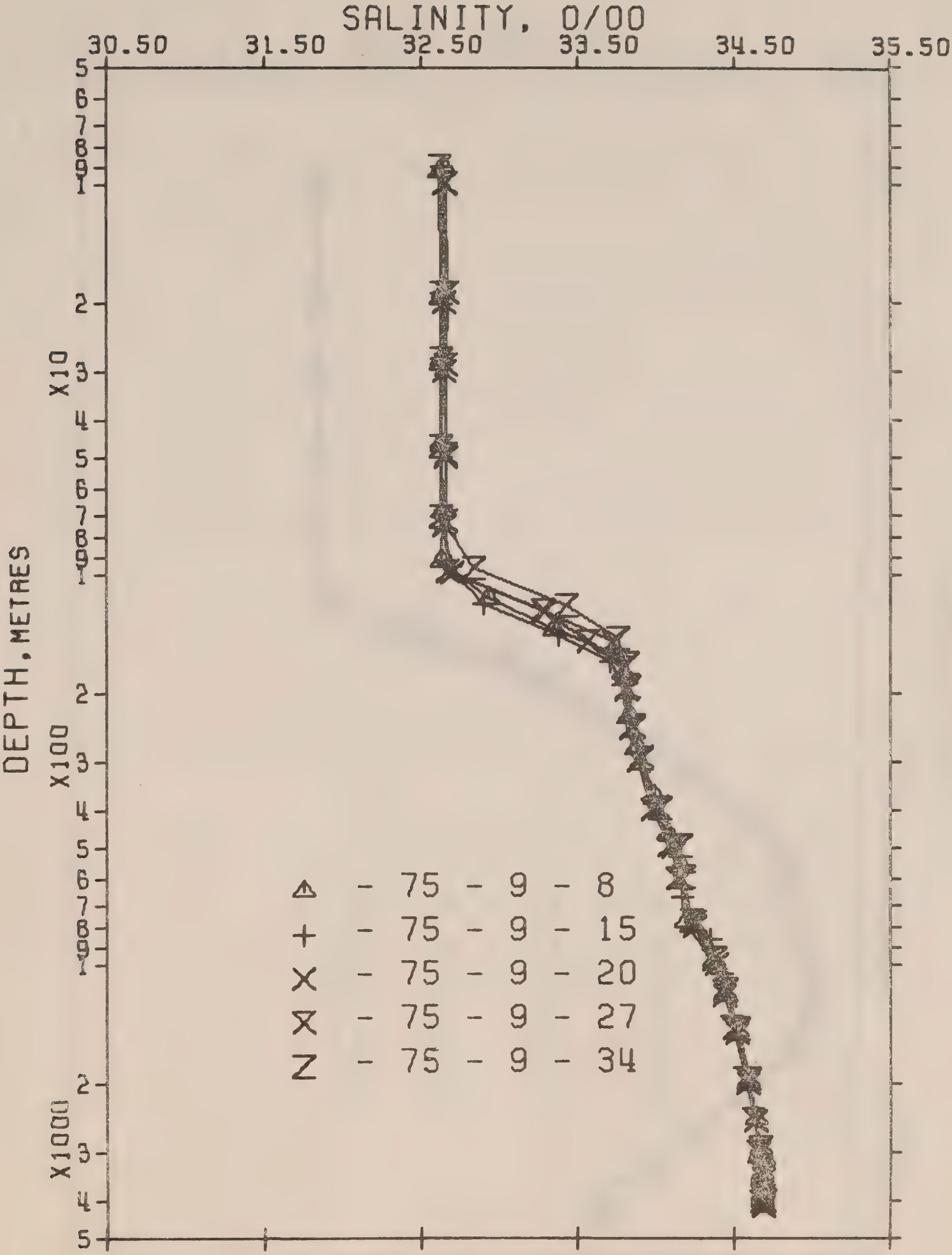



Figure 3. Composite plot of salinity vs $\log_{10}$ depth. P-75-9

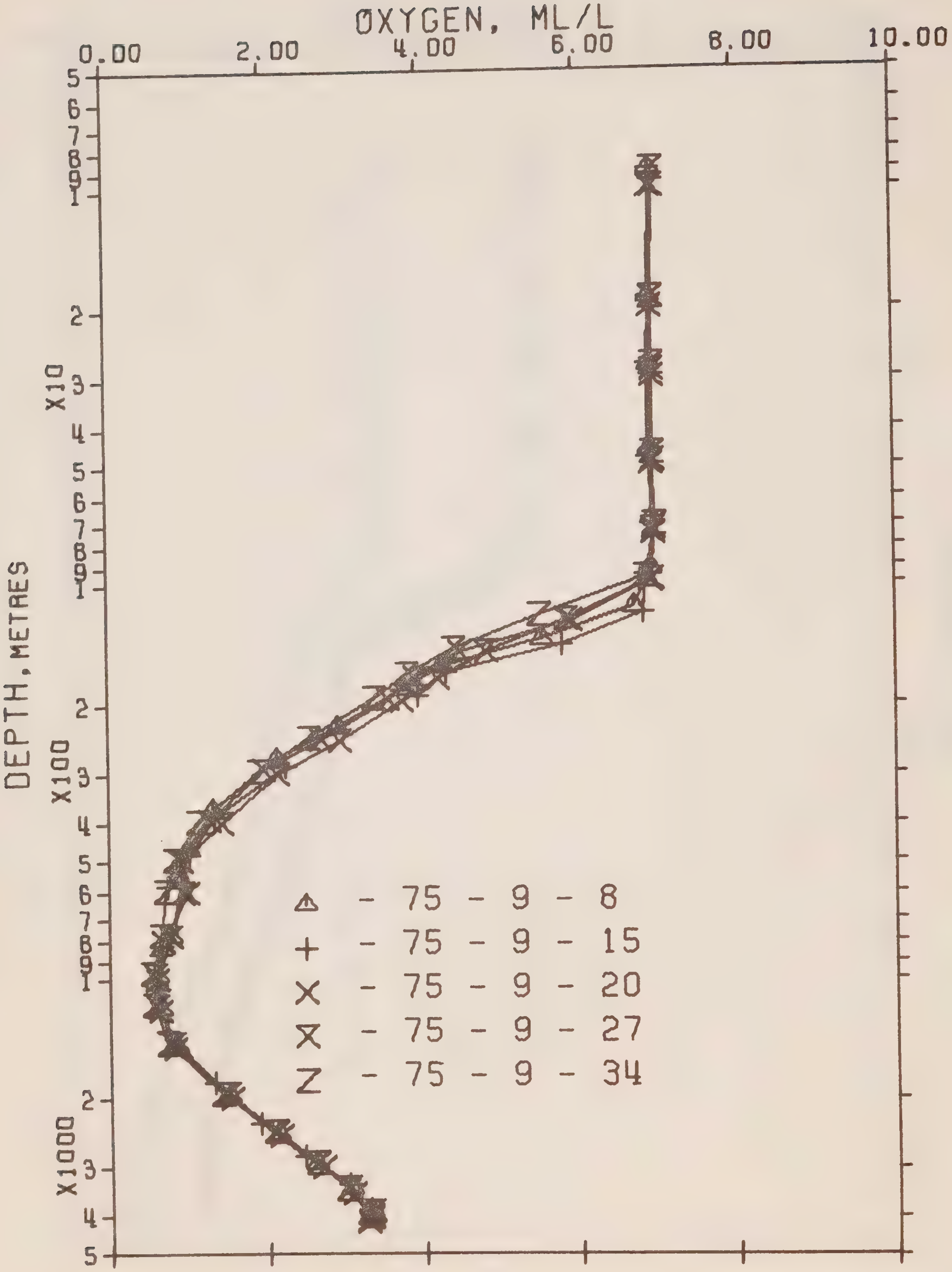
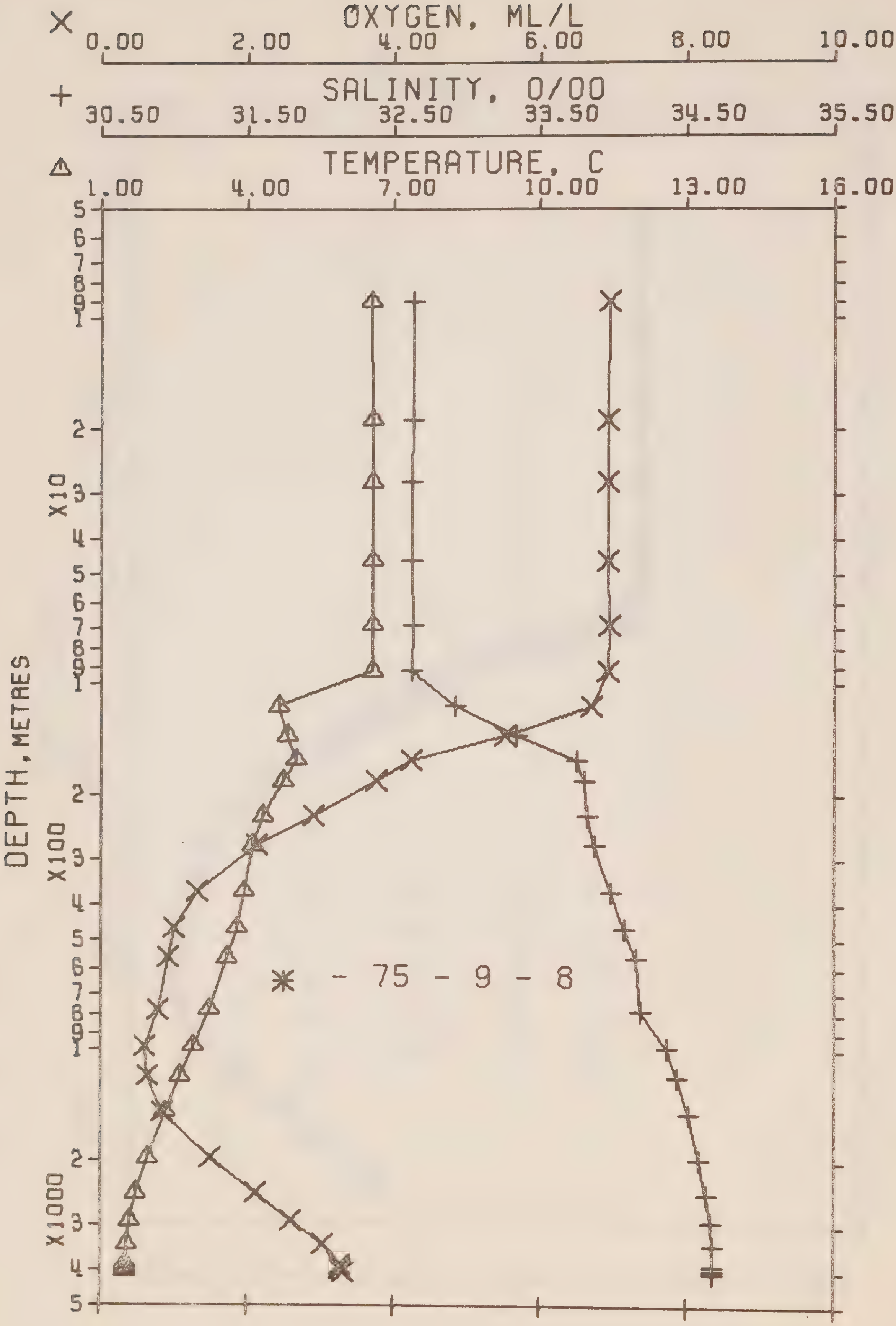
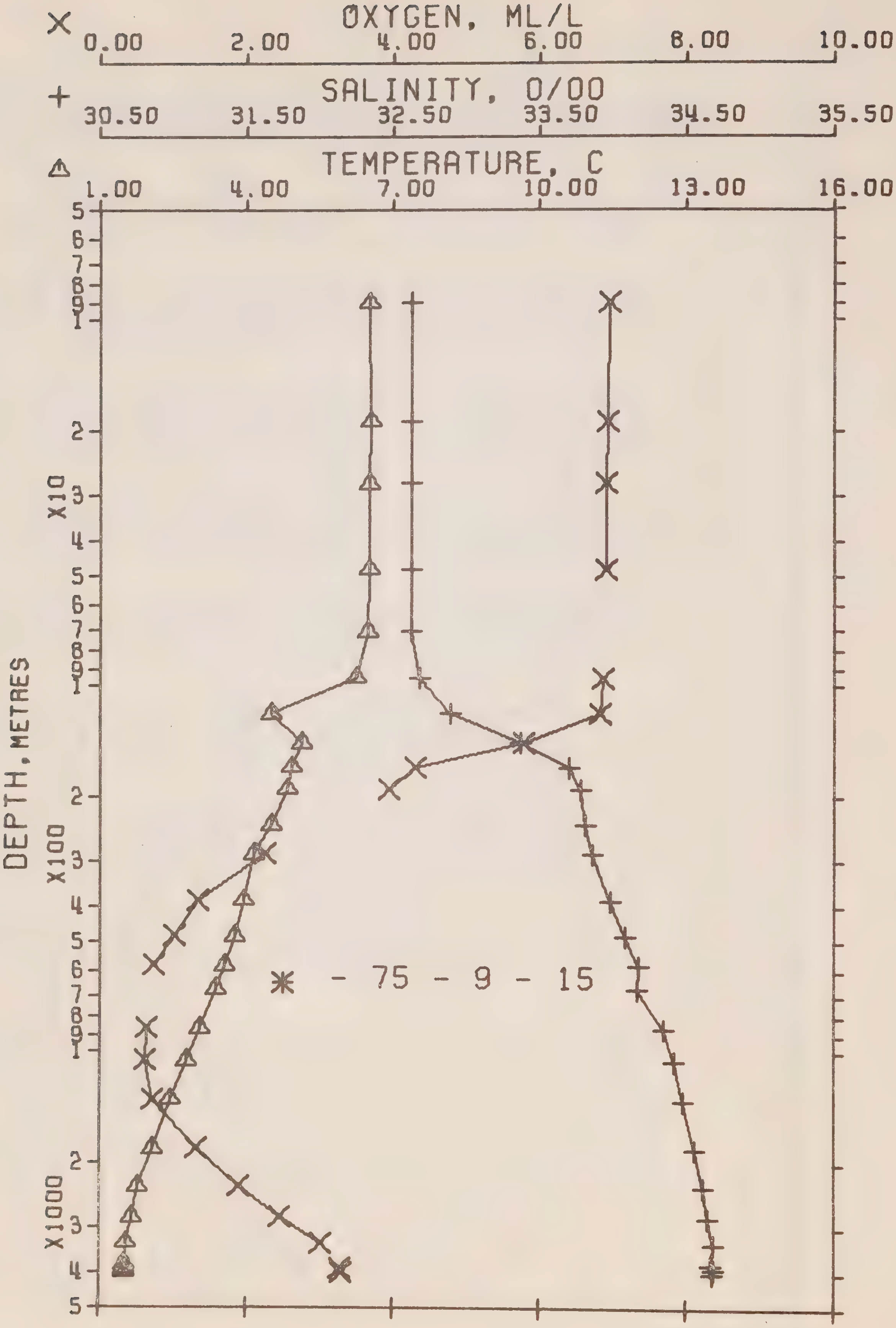



Figure 4. Composite plot of oxygen vs $\log_{10}$ depth. P-75-9


OXYGEN, ML/L
0.00
2.00
4.00
6.00
8.00
10.00
SALINITY, 0/00
30.50
31.50
32.50
33.50
34.50
35.50
TEMPERATURE, C
1.00
4.00
7.00
10.00
13.00
16.00
DEPTH, METRES
X10
X100
X1000
* - 75 - 9 - 8

OFFSHORE OCEANOGRAPHY GROUP REFERENCE NO. 75- 9- 8 DATE 9/12/75
POSITION 50- 0.0 N. 145- 0.0 W GMT 18.0
HYDROGRAPHIC CAST DATA

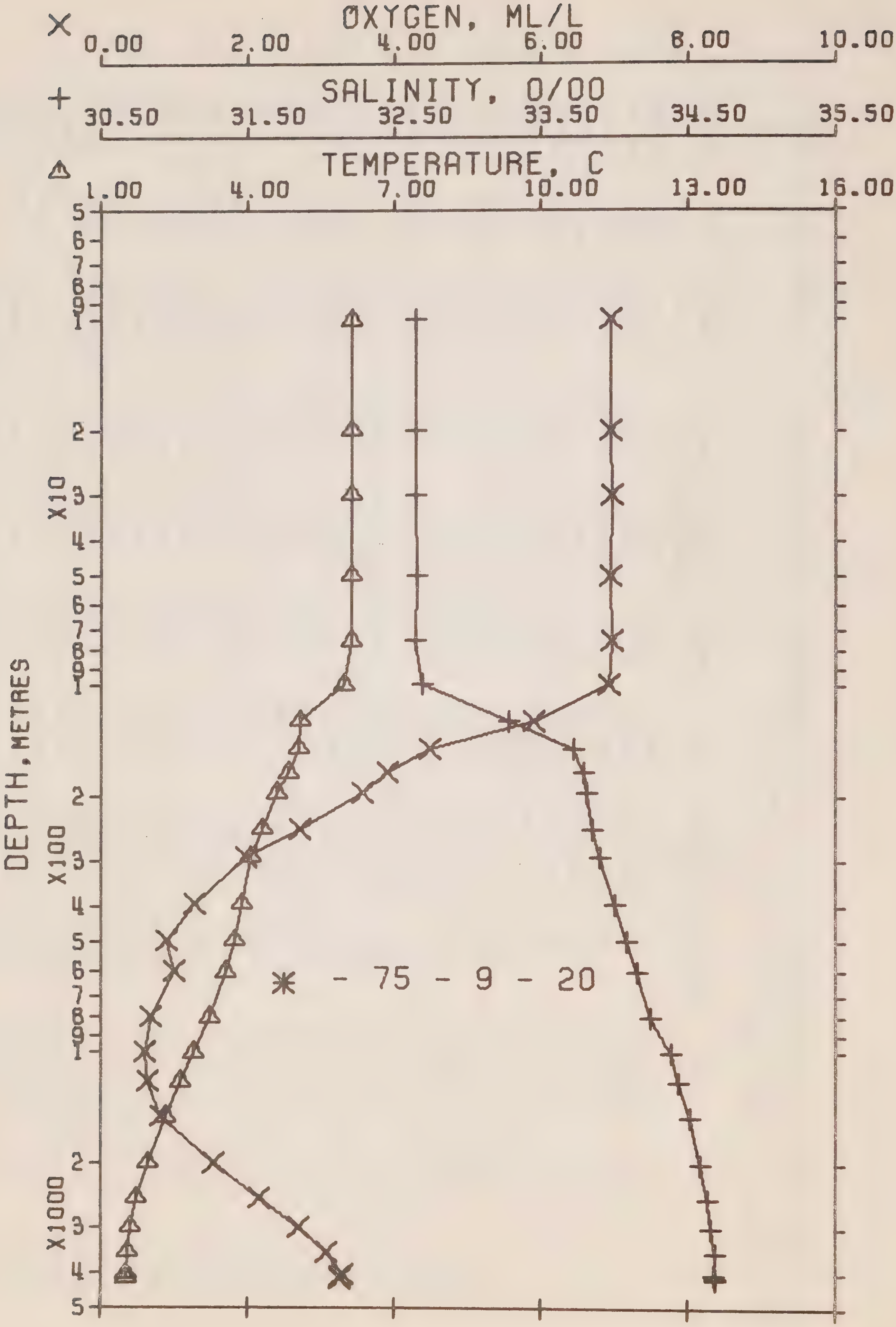
| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | THETA | SVA (THETA) | DELTA D | POT. EN | OXY | SOUND |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 6.57 | 32.642 | 0 | 25.645 | 235.6 | 6.57 | 235.4 | 0.0 | 0.0 | 6.89 | 1474. |
| 9 | 6.56 | 32.640 | 9 | 25.644 | 235.7 | 6.56 | 235.4 | 0.21 | 0.01 | 6.97 | 1474. |
| 19 | 6.58 | 32.641 | 19 | 25.643 | 236.0 | 6.58 | 235.6 | 0.45 | 0.04 | 6.94 | 1475. |
| 28 | 6.57 | 32.634 | 28 | 25.638 | 236.6 | 6.57 | 235.9 | 0.66 | 0.10 | 6.93 | 1475. |
| 46 | 6.57 | 32.633 | 46 | 25.638 | 236.9 | 6.57 | 236.0 | 1.09 | 0.25 | 6.94 | 1475. |
| 69 | 6.57 | 32.639 | 69 | 25.642 | 236.7 | 6.56 | 235.6 | 1.64 | 0.58 | 6.96 | 1475. |
| 93 | 6.57 | 32.633 | 92 | 25.638 | 237.5 | 6.56 | 235.9 | 2.20 | 1.04 | 6.94 | 1476. |
| 116 | 4.66 | 32.927 | 115 | 26.096 | 193.7 | 4.65 | 192.4 | 2.70 | 1.57 | 6.73 | 1469. |
| 139 | 4.83 | 33.352 | 138 | 26.414 | 163.9 | 4.82 | 162.2 | 3.11 | 2.11 | 5.54 | 1470. |
| 162 | 5.03 | 33.761 | 161 | 26.715 | 135.7 | 5.02 | 133.6 | 3.46 | 2.64 | 4.25 | 1472. |
| 185 | 4.74 | 33.810 | 184 | 26.786 | 129.0 | 4.73 | 126.8 | 3.76 | 3.17 | 3.78 | 1471. |
| 231 | 4.34 | 33.835 | 229 | 26.850 | 123.3 | 4.32 | 120.8 | 4.33 | 4.38 | 2.93 | 1470. |
| 277 | 4.13 | 33.885 | 275 | 26.911 | 117.7 | 4.11 | 115.0 | 4.89 | 5.83 | 2.14 | 1470. |
| 371 | 3.94 | 33.988 | 368 | 27.013 | 108.8 | 3.91 | 105.3 | 5.95 | 9.33 | 1.31 | 1471. |
| 467 | 3.80 | 34.076 | 463 | 27.097 | 101.6 | 3.77 | 97.2 | 6.96 | 13.64 | 1.01 | 1472. |
| 566 | 3.59 | 34.158 | 561 | 27.183 | 94.0 | 3.55 | 89.0 | 7.92 | 18.71 | 0.92 | 1473. |
| 783 | 3.22 | 34.189 | 776 | 27.243 | 89.3 | 3.17 | 83.2 | 9.91 | 32.46 | 0.78 | 1475. |
| 989 | 2.89 | 34.371 | 979 | 27.418 | 73.6 | 2.82 | 66.5 | 11.58 | 47.50 | 0.60 | 1477. |
| 1193 | 2.63 | 34.442 | 1181 | 27.497 | 66.6 | 2.55 | 58.9 | 13.00 | 63.33 | 0.63 | 1480. |
| 1497 | 2.31 | 34.517 | 1481 | 27.584 | 59.1 | 2.21 | 50.5 | 14.91 | 89.39 | 0.83 | 1484. |
| 1999 | 1.96 | 34.590 | 1975 | 27.671 | 51.8 | 1.82 | 42.1 | 17.66 | 138.51 | 1.49 | 1491. |
| 2494 | 1.73 | 34.637 | 2461 | 27.726 | 47.3 | 1.55 | 36.7 | 20.09 | 194.34 | 2.12 | 1498. |
| 2981 | 1.60 | 34.672 | 2938 | 27.764 | 44.6 | 1.38 | 32.8 | 22.32 | 256.34 | 2.61 | 1506. |
| 3459 | 1.53 | 34.678 | 3405 | 27.774 | 44.5 | 1.26 | 31.6 | 24.43 | 325.85 | 3.04 | 1514. |
| 3928 | 1.52 | 34.682 | 3863 | 27.778 | 45.3 | 1.20 | 30.9 | 26.54 | 405.13 | 3.29 | 1522. |
| 4021 | 1.52 | 34.684 | 3954 | 27.779 | 45.5 | 1.19 | 30.6 | 26.96 | 422.30 | 3.28 | 1523. |
| 4105 | 1.52 | 34.679 | 4035 | 27.775 | 46.1 | 1.18 | 31.0 | 27.34 | 438.06 | 3.31 | 1525. |
| 4114 | 1.52 | 34.678* | 4044 | 27.775 | 46.1 | 1.18 | 31.0 | 27.39 | 439.84 | | 1525. |



OXYGEN, ML/L
0.00
2.00
4.00
6.00
8.00
10.00
SALINITY, 0/00
30.50
31.50
32.50
33.50
34.50
35.50
TEMPERATURE, C
1.00
4.00
7.00
10.00
13.00
16.00
DEPTH, METRES
X10
X100
X1000
* - 75 - 9 - 15

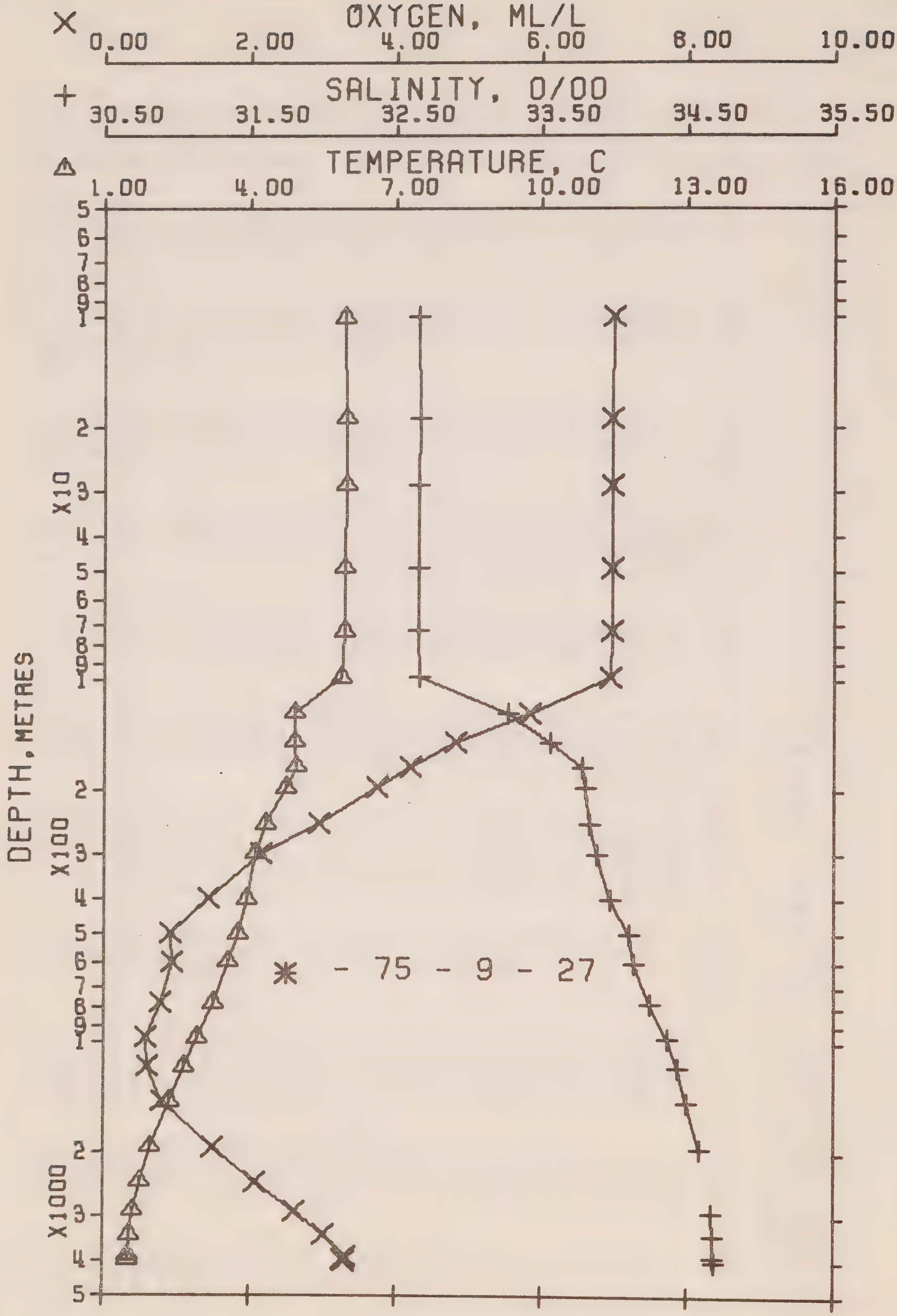
OFFSHORE OCEANOGRAPHY GRCUP REFERENCE NO. 75- 9- 15 DATE 15/12/75
POSITION 50- 0.0 N, 145- 0.0 W GMT 17.3
HYDRCGRAPHIC CAST DATA

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | THETA | SVA (THETA) | DELTA D | POT. EN | OXY | SOUND |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 6.53 | 32.628 | 0 | 25.639 | 236.1 | 6.53 | 235.9 | 0.0 | 0.0 | 6.88 | 1474. |
| 9 | 6.51 | 32.628 | 9 | 25.641 | 236.1 | 6.51 | 235.6 | 0.21 | 0.01 | 6.95 | 1474. |
| 19 | 6.54 | 32.628 | 19 | 25.638 | 236.6 | 6.54 | 236.0 | 0.45 | 0.04 | 6.94 | 1474. |
| 28 | 6.51 | 32.627 | 28 | 25.641 | 236.3 | 6.51 | 235.7 | 0.67 | 0.10 | 6.93 | 1474. |
| 48 | 6.51 | 32.628 | 48 | 25.641 | 236.5 | 6.51 | 235.6 | 1.14 | 0.28 | 6.92 | 1475. |
| 71 | 6.50 | 32.630 | 71 | 25.644 | 236.6 | 6.49 | 235.4 | 1.69 | 0.62 | | 1475. |
| 96 | 6.24 | 32.694 | 95 | 25.728 | 228.8 | 6.23 | 227.4 | 2.26 | 1.10 | 6.87 | 1475. |
| 120 | 4.50 | 32.898 | 119 | 26.090 | 194.3 | 4.49 | 193.0 | 2.77 | 1.66 | 6.84 | 1468. |
| 144 | 5.15 | 33.377 | 143 | 26.398 | 165.6 | 5.14 | 163.7 | 3.21 | 2.25 | 5.79 | 1472. |
| 168 | 4.93 | 33.712 | 167 | 26.688 | 138.3 | 4.92 | 136.2 | 3.57 | 2.83 | 4.32 | 1472. |
| 192 | 4.85 | 33.790 | 191 | 26.758 | 131.8 | 4.84 | 129.5 | 3.89 | 3.42 | 3.96 | 1472. |
| 242 | 4.50 | 33.819 | 240 | 26.820 | 126.3 | 4.48 | 123.6 | 4.53 | 4.83 | | 1471. |
| 290 | 4.15 | 33.871 | 288 | 26.898 | 119.1 | 4.13 | 116.1 | 5.12 | 6.44 | 2.26 | 1471. |
| 388 | 3.94 | 33.988 | 385 | 27.013 | 109.0 | 3.91 | 105.3 | 6.23 | 10.28 | 1.34 | 1472. |
| 487 | 3.77 | 34.088 | 483 | 27.109 | 100.5 | 3.74 | 96.1 | 7.27 | 14.90 | 1.02 | 1473. |
| 585 | 3.56 | 34.178 | 580 | 27.202 | 92.4 | 3.52 | 87.2 | 8.21 | 20.03 | 0.74 | 1473. |
| 678 | 3.38 | 34.174 | 672 | 27.216 | 91.4 | 3.33 | 85.8 | 9.06 | 25.53 | | 1474. |
| 872 | 3.05 | 34.348 | 864 | 27.385 | 76.2 | 2.99 | 69.7 | 10.70 | 38.41 | 0.63 | 1476. |
| 1068 | 2.76 | 34.423 | 1057 | 27.471 | 68.7 | 2.69 | 61.4 | 12.11 | 52.30 | 0.62 | 1478. |
| 1363 | 2.44 | 34.481 | 1349 | 27.545 | 62.6 | 2.35 | 54.4 | 14.04 | 76.24 | 0.71 | 1482. |
| 1860 | 2.07 | 34.559 | 1838 | 27.637 | 54.9 | 1.94 | 45.4 | 16.93 | 123.88 | 1.33 | 1489. |
| 2362 | 1.79 | 34.617 | 2331 | 27.706 | 49.1 | 1.62 | 38.7 | 19.53 | 179.58 | 1.91 | 1496. |
| 2866 | 1.65 | 34.646 | 2825 | 27.739 | 46.8 | 1.44 | 35.2 | 21.93 | 243.82 | 2.47 | 1504. |
| 3371 | 1.54 | 34.686 | 3319 | 27.780 | 43.8 | 1.28 | 31.1 | 24.21 | 316.01 | 3.01 | 1512. |
| 3874 | 1.52 | 34.674 | 3810 | 27.771 | 45.8 | 1.21 | 31.6 | 26.48 | 400.24 | | 1521. |
| 3974 | 1.52 | 34.692 | 3908 | 27.786 | 44.8 | 1.20 | 30.1 | 26.94 | 418.41 | 3.27 | 1522. |
| 4065 | 1.52 | 34.684 | 3996 | 27.779 | 45.6 | 1.19 | 30.6 | 27.34 | 435.13 | 3.30 | 1524. |
| 4074 | 1.52 | 34.683* | 4005 | 27.779 | 45.6 | 1.19 | 30.7 | 27.39 | 436.87 | | 1524. |


ØXYGEN, ML/L
0.00 2.00 4.00 6.00 8.00 10.00
SALINITY, 0/00
30.50 31.50 32.50 33.50 34.50 35.50
TEMPERATURE, C
1.00 4.00 7.00 10.00 13.00 16.00
DEPTH, METRES
X10
X100
X1000
* - 75 - 9 - 20

OFFSHORE OCEANOGRAPHY GROUP REFERENCE NO. 75- 9- 20 DATE 22/12/75
POSITION 50- 0.0 N, 145- 0.0 W GMT 18.9
HYDROGRAPHIC CAST DATA

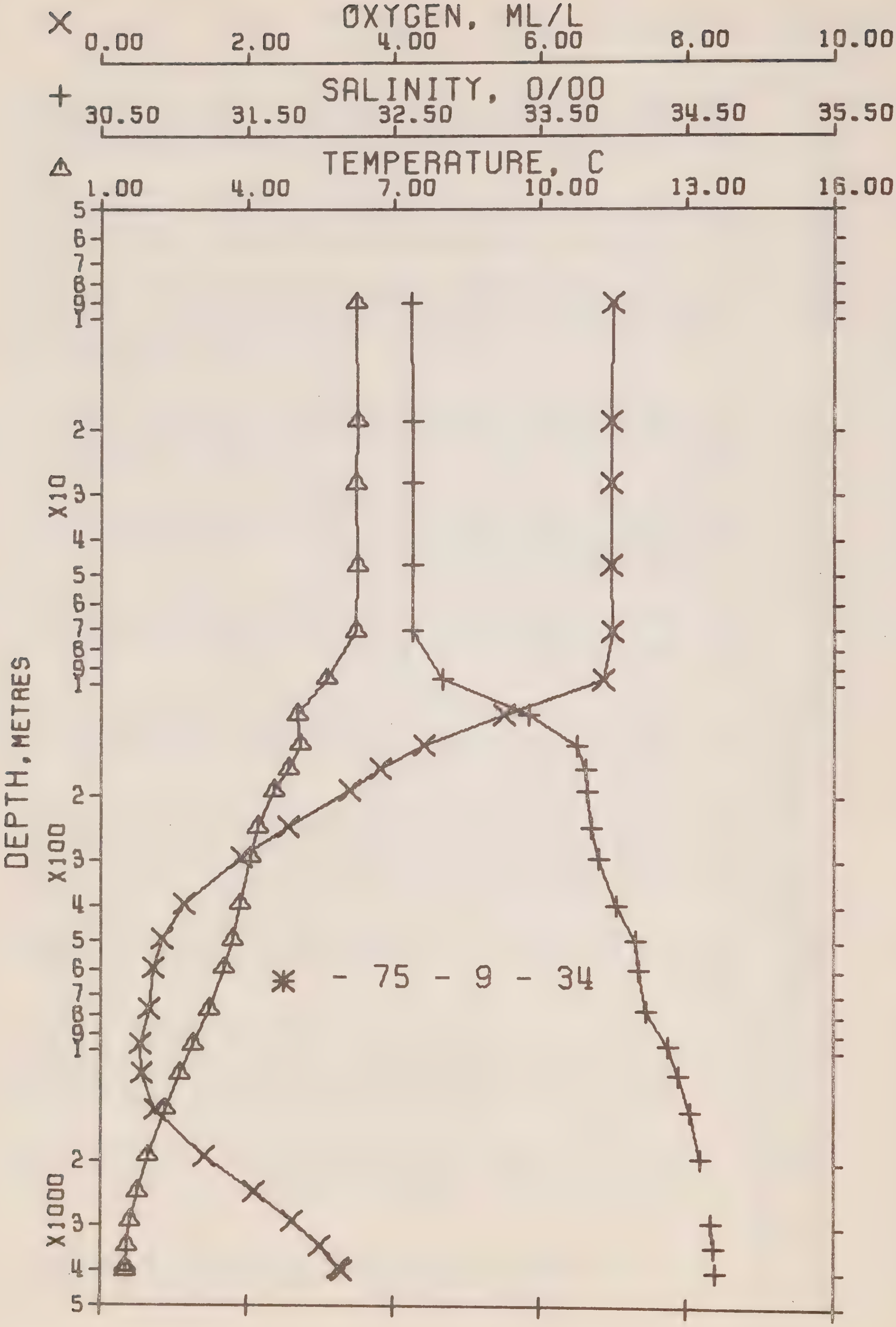
| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | THETA | SVA (THETA) | DELTA D | POT. EN | OXY | SOUND |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 6.17 | 32.644 | 0 | 25.697 | 230.6 | 6.17 | 230.4 | 0.0 | 0.0 | 6.93 | 1473. |
| 10 | 6.12 | 32.647 | 10 | 25.706 | 229.9 | 6.12 | 229.6 | 0.23 | 0.01 | 6.96 | 1473. |
| 20 | 6.14 | 32.647 | 20 | 25.703 | 230.3 | 6.14 | 229.8 | 0.46 | 0.05 | 6.95 | 1473. |
| 30 | 6.12 | 32.647 | 30 | 25.706 | 230.1 | 6.12 | 229.6 | 0.69 | 0.11 | 6.98 | 1473. |
| 50 | 6.12 | 32.657 | 50 | 25.713 | 229.6 | 6.12 | 228.8 | 1.16 | 0.30 | 6.96 | 1473. |
| 75 | 6.12 | 32.652 | 75 | 25.710 | 230.3 | 6.11 | 229.1 | 1.74 | 0.57 | 6.97 | 1474. |
| 100 | 5.99 | 32.697 | 99 | 25.761 | 225.7 | 5.98 | 224.2 | 2.30 | 1.17 | 6.93 | 1474. |
| 125 | 5.08 | 33.293 | 124 | 26.339 | 170.9 | 5.07 | 169.3 | 2.80 | 1.74 | 5.93 | 1471. |
| 149 | 5.04 | 33.726 | 148 | 26.686 | 138.3 | 5.03 | 136.4 | 3.17 | 2.25 | 4.50 | 1472. |
| 173 | 4.85 | 33.801 | 172 | 26.767 | 130.8 | 4.84 | 128.7 | 3.49 | 2.78 | 3.92 | 1472. |
| 197 | 4.60 | 33.823 | 196 | 26.812 | 126.7 | 4.59 | 124.4 | 3.80 | 3.37 | 3.57 | 1471. |
| 247 | 4.29 | 33.858 | 245 | 26.873 | 121.2 | 4.27 | 118.6 | 4.41 | 4.75 | 2.72 | 1471. |
| 295 | 4.06 | 33.914 | 293 | 26.942 | 115.0 | 4.04 | 112.1 | 4.98 | 6.33 | 1.98 | 1470. |
| 395 | 3.88 | 34.008 | 392 | 27.035 | 106.9 | 3.85 | 103.2 | 6.09 | 10.22 | 1.27 | 1471. |
| 499 | 3.74 | 34.094 | 495 | 27.117 | 99.8 | 3.70 | 95.3 | 7.16 | 15.11 | 0.90 | 1473. |
| 608 | 3.54 | 34.160 | 603 | 27.189 | 93.7 | 3.50 | 88.4 | 8.21 | 21.06 | 0.99 | 1474. |
| 807 | 3.21 | 34.249 | 800 | 27.291 | 84.9 | 3.15 | 78.6 | 9.99 | 33.91 | 0.68 | 1476. |
| 1011 | 2.89 | 34.393 | 1001 | 27.435 | 72.0 | 2.82 | 64.9 | 11.58 | 48.61 | 0.59 | 1478. |
| 1213 | 2.62 | 34.443 | 1201 | 27.499 | 66.6 | 2.54 | 58.7 | 12.98 | 64.45 | 0.63 | 1480. |
| 1519 | 2.31 | 34.517 | 1502 | 27.584 | 59.2 | 2.21 | 50.5 | 14.89 | 91.09 | 0.83 | 1484. |
| 2027 | 1.96 | 34.594 | 2002 | 27.674 | 51.6 | 1.82 | 41.8 | 17.68 | 141.44 | 1.53 | 1491. |
| 2537 | 1.72 | 34.638 | 2503 | 27.728 | 47.3 | 1.54 | 36.5 | 20.18 | 199.74 | 2.15 | 1499. |
| 3054 | 1.59 | 34.665 | 3009 | 27.759 | 45.2 | 1.36 | 33.3 | 22.56 | 267.45 | 2.71 | 1507. |
| 3578 | 1.53 | 34.686 | 3521 | 27.780 | 44.3 | 1.25 | 30.9 | 24.89 | 346.18 | 3.08 | 1516. |
| 4111 | 1.52 | 34.676 | 4041 | 27.773 | 46.2 | 1.18 | 31.2 | 27.32 | 441.83 | 3.31 | 1525. |
| 4208 | 1.52 | 34.690 | 4136 | 27.784 | 45.6 | 1.17 | 30.1 | 27.77 | 460.93 | 3.26 | 1526. |
| 4219 | 1.52 | 34.694 | 4146 | 27.787 | 45.3 | 1.17 | 29.7 | 27.82 | 462.94 | 3.27 | 1527. |



OXYGEN, ML/L
0.00
2.00
4.00
6.00
8.00
10.00
SALINITY, O/OO
30.50
31.50
32.50
33.50
34.50
35.50
TEMPERATURE, C
1.00
4.00
7.00
10.00
13.00
16.00
DEPTH, METRES
X10
X100
X1000
* - 75 - 9 - 27

OFFSHORE OCEANOGRAPHY GROUP REFERENCE NO. 75- 9- 27 DATE 29/12/75
POSITION 50- 0.0 N, 145- 0.0 W GMT 18.4
HYDROGRAPHIC CAST DATA

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | THETA | SVA (THETA) | DELTA D | POT. EN | OXY | SOUND |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 5.96 | 32.664 | 0 | 25.739 | 226.7 | 5.96 | 226.5 | 0.0 | 0.0 | 6.93 | 1472. |
| 10 | 5.95 | 32.664 | 10 | 25.740 | 226.6 | 5.95 | 226.3 | 0.23 | 0.01 | 6.99 | 1472. |
| 19 | 5.97 | 32.670 | 19 | 25.742 | 226.6 | 5.97 | 226.1 | 0.43 | 0.04 | 6.98 | 1472. |
| 29 | 5.97 | 32.659 | 29 | 25.734 | 227.5 | 5.97 | 226.9 | 0.66 | 0.10 | 6.98 | 1472. |
| 49 | 5.96 | 32.664 | 49 | 25.739 | 227.3 | 5.96 | 226.4 | 1.12 | 0.28 | 6.99 | 1473. |
| 73 | 5.96 | 32.662 | 73 | 25.737 | 227.6 | 5.95 | 226.5 | 1.67 | 0.63 | 6.99 | 1473. |
| 99 | 5.88 | 32.674 | 98 | 25.756 | 226.1 | 5.87 | 224.7 | 2.25 | 1.14 | 6.96 | 1473. |
| 124 | 4.94 | 33.285 | 123 | 26.349 | 169.9 | 4.93 | 168.4 | 2.75 | 1.70 | 5.85 | 1470. |
| 149 | 4.92 | 33.568 | 148 | 26.575 | 148.8 | 4.91 | 147.0 | 3.15 | 2.25 | 4.84 | 1471. |
| 174 | 4.97 | 33.788 | 173 | 26.743 | 133.1 | 4.96 | 131.0 | 3.50 | 2.83 | 4.21 | 1472. |
| 199 | 4.74 | 33.809 | 198 | 26.786 | 129.3 | 4.72 | 126.9 | 3.83 | 3.46 | 3.76 | 1472. |
| 251 | 4.33 | 33.836 | 249 | 26.852 | 123.3 | 4.31 | 120.7 | 4.48 | 4.95 | 2.95 | 1471. |
| 302 | 4.12 | 33.894 | 300 | 26.920 | 117.1 | 4.10 | 114.1 | 5.09 | 6.69 | 2.16 | 1471. |
| 404 | 3.94 | 33.982 | 401 | 27.008 | 109.6 | 3.91 | 105.7 | 6.25 | 10.85 | 1.44 | 1472. |
| 505 | 3.75 | 34.110 | 501 | 27.129 | 98.8 | 3.71 | 94.2 | 7.30 | 15.70 | 0.92 | 1473. |
| 604 | 3.54 | 34.139 | 599 | 27.172 | 95.2 | 3.50 | 90.0 | 8.25 | 21.12 | 0.93 | 1474. |
| 787 | 3.25 | 34.248 | 780 | 27.287 | 85.3 | 3.20 | 79.1 | 9.91 | 32.86 | 0.79 | 1476. |
| 983 | 2.93 | 34.373 | 974 | 27.416 | 73.8 | 2.86 | 66.8 | 11.47 | 46.88 | 0.59 | 1478. |
| 1180 | 2.66 | 34.437 | 1168 | 27.491 | 67.2 | 2.58 | 59.5 | 12.84 | 62.08 | 0.59 | 1480. |
| 1476 | 2.35 | 34.504 | 1460 | 27.571 | 60.4 | 2.25 | 51.9 | 14.72 | 87.55 | 0.81 | 1483. |
| 1971 | 1.97 | 34.586 | 1947 | 27.667 | 52.1 | 1.83 | 42.6 | 17.49 | 136.06 | 1.50 | 1490. |
| 2468 | 1.74 | 34.637* | 2435 | 27.726 | 47.3 | 1.57 | 36.7 | 19.94 | 191.56 | 2.09 | 1498. |
| 2965 | 1.61 | 34.666 | 2922 | 27.758 | 45.1 | 1.39 | 33.4 | 22.22 | 254.85 | 2.63 | 1505. |
| 3463 | 1.53 | 34.680 | 3409 | 27.776 | 44.4 | 1.26 | 31.5 | 24.44 | 327.58 | 3.01 | 1514. |
| 3959 | 1.52 | 34.684 | 3893 | 27.779 | 45.3 | 1.20 | 30.7 | 26.68 | 412.35 | 3.32 | 1522. |
| 4048 | 1.52 | 34.693* | 3980 | 27.787 | 44.9 | 1.19 | 30.0 | 27.09 | 428.79 | 3.28 | 1524. |
| 4058 | 1.52 | 34.694 | 3990 | 27.787 | 44.9 | 1.19 | 29.9 | 27.13 | 430.70 | 3.30 | 1524. |


X OXYGEN, ML/L
0.00 2.00 4.00 6.00 8.00 10.00
+ SALINITY, 0/00
30.50 31.50 32.50 33.50 34.50 35.50
△ TEMPERATURE, C
1.00 4.00 7.00 10.00 13.00 16.00
DEPTH, METRES
X10
X100
X1000
* - 75 - 9 - 34

OFFSHORE OCEANOGRAPHY GROUP REFERENCE NO. 75- 9- 34 DATE 6/ 1/76
POSITION 50- 0.0 N, 145- 0.0 W GMT 17.7
HYDROGRAPHIC CAST DATA

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | THETA | SVA (THETA) | DELTA D | POT. EN | OXY | SOUND |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 6.24 | 32.620 | 0 | 25.669 | 233.2 | 6.24 | 233.0 | 0.0 | 0.0 | 6.92 | 1473. |
| 9 | 6.23 | 32.619 | 9 | 25.670 | 233.3 | 6.23 | 233.0 | 0.21 | 0.01 | 6.99 | 1473. |
| 19 | 6.25 | 32.628 | 19 | 25.674 | 233.0 | 6.25 | 232.6 | 0.45 | 0.04 | 6.97 | 1473. |
| 28 | 6.23 | 32.626 | 28 | 25.675 | 233.0 | 6.23 | 232.5 | 0.66 | 0.09 | 6.98 | 1473. |
| 47 | 6.24 | 32.627 | 47 | 25.675 | 233.2 | 6.24 | 232.5 | 1.10 | 0.27 | 6.98 | 1474. |
| 71 | 6.21 | 32.626 | 71 | 25.678 | 233.3 | 6.20 | 232.2 | 1.67 | 0.61 | 6.99 | 1474. |
| 97 | 5.61 | 32.837 | 96 | 25.917 | 210.7 | 5.60 | 209.4 | 2.24 | 1.10 | 6.88 | 1472. |
| 121 | 5.03 | 33.433 | 120 | 26.456 | 159.8 | 5.02 | 158.3 | 2.68 | 1.59 | 5.52 | 1471. |
| 146 | 5.09 | 33.760 | 145 | 26.707 | 136.3 | 5.08 | 134.3 | 3.05 | 2.09 | 4.42 | 1472. |
| 170 | 4.85 | 33.820 | 169 | 26.782 | 129.3 | 4.84 | 127.2 | 3.37 | 2.60 | 3.82 | 1472. |
| 195 | 4.53 | 33.832 | 194 | 26.827 | 125.2 | 4.52 | 123.0 | 3.69 | 3.20 | 3.40 | 1471. |
| 246 | 4.21 | 33.857 | 244 | 26.881 | 120.4 | 4.19 | 117.8 | 4.31 | 4.59 | 2.55 | 1470. |
| 297 | 4.05 | 33.908 | 295 | 26.938 | 115.3 | 4.03 | 112.4 | 4.91 | 6.27 | 1.91 | 1470. |
| 399 | 3.86 | 34.031 | 396 | 27.055 | 105.0 | 3.83 | 101.2 | 6.04 | 10.25 | 1.13 | 1471. |
| 500 | 3.70 | 34.160 | 496 | 27.173 | 94.5 | 3.66 | 89.9 | 7.04 | 14.84 | 0.83 | 1473. |
| 600 | 3.52 | 34.181 | 595 | 27.208 | 91.8 | 3.48 | 86.7 | 7.97 | 20.04 | 0.72 | 1474. |
| 778 | 3.21 | 34.233 | 771 | 27.279 | 85.9 | 3.16 | 79.9 | 9.55 | 31.22 | 0.66 | 1475. |
| 974 | 2.89 | 34.383 | 965 | 27.427 | 72.6 | 2.82 | 65.7 | 11.11 | 45.07 | 0.53 | 1477. |
| 1173 | 2.63 | 34.449 | 1161 | 27.503 | 66.0 | 2.55 | 58.4 | 12.48 | 60.04 | 0.56 | 1480. |
| 1471 | 2.31 | 34.528 | 1455 | 27.593 | 58.2 | 2.21 | 49.7 | 14.32 | 84.82 | 0.73 | 1483. |
| 1972 | 1.96 | 34.596 | 1948 | 27.676 | 51.2 | 1.82 | 41.7 | 17.02 | 132.39 | 1.41 | 1490. |
| 2476 | 1.74 | 34.643* | 2443 | 27.730 | 46.9 | 1.56 | 36.3 | 19.48 | 188.14 | 2.09 | 1498. |
| 2982 | 1.60 | 34.672 | 2939 | 27.764 | 44.6 | 1.38 | 32.8 | 21.79 | 252.26 | 2.61 | 1506. |
| 3488 | 1.53 | 34.688 | 3434 | 27.782 | 43.9 | 1.26 | 30.8 | 24.02 | 325.82 | 3.00 | 1514. |
| 3993 | 1.52 | 34.696* | 3926 | 27.789 | 44.6 | 1.20 | 29.8 | 26.25 | 410.82 | 3.27 | 1523. |
| 4084 | 1.52 | 34.698* | 4015 | 27.791 | 44.7 | 1.19 | 29.6 | 26.65 | 427.59 | | 1524. |
| 4094 | 1.52 | 34.698 | 4025 | 27.791 | 44.7 | 1.19 | 29.6 | 26.70 | 429.51 | 3.30 | 1524. |

RESULTS OF STP OBSERVATIONS

(P-75-9)

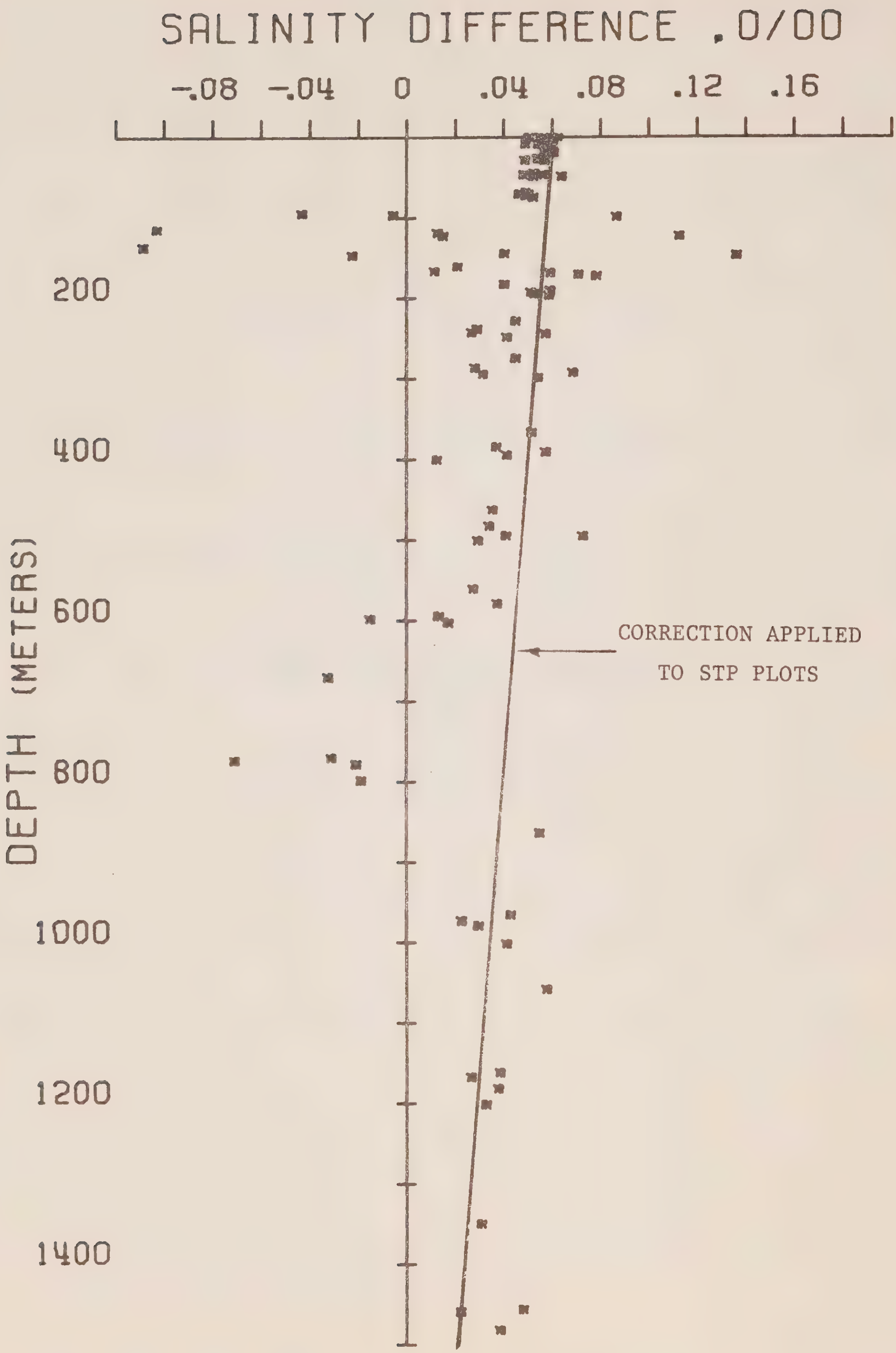



Figure 5. Salinity difference between hydro data and STP. P-75-9

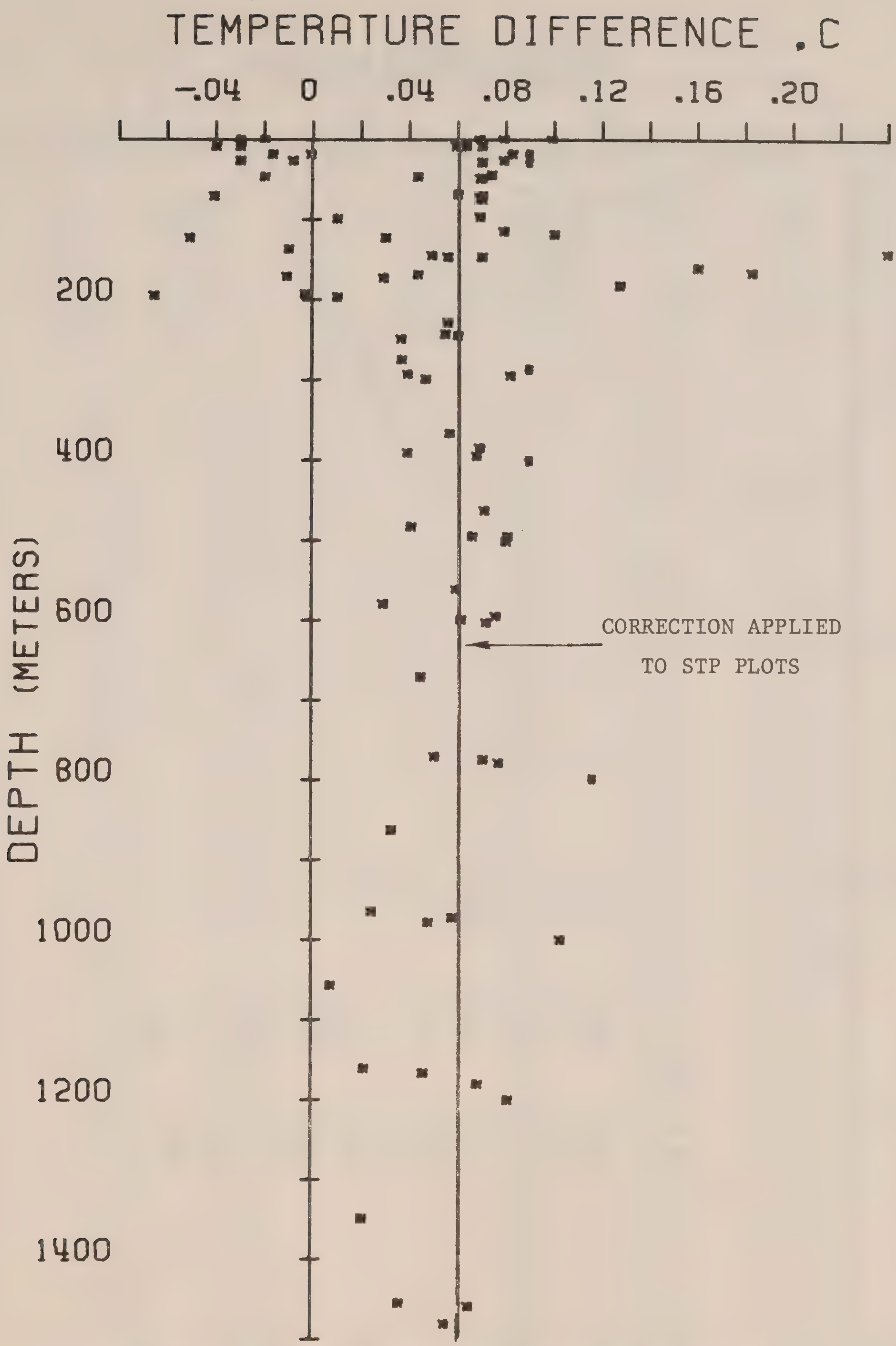
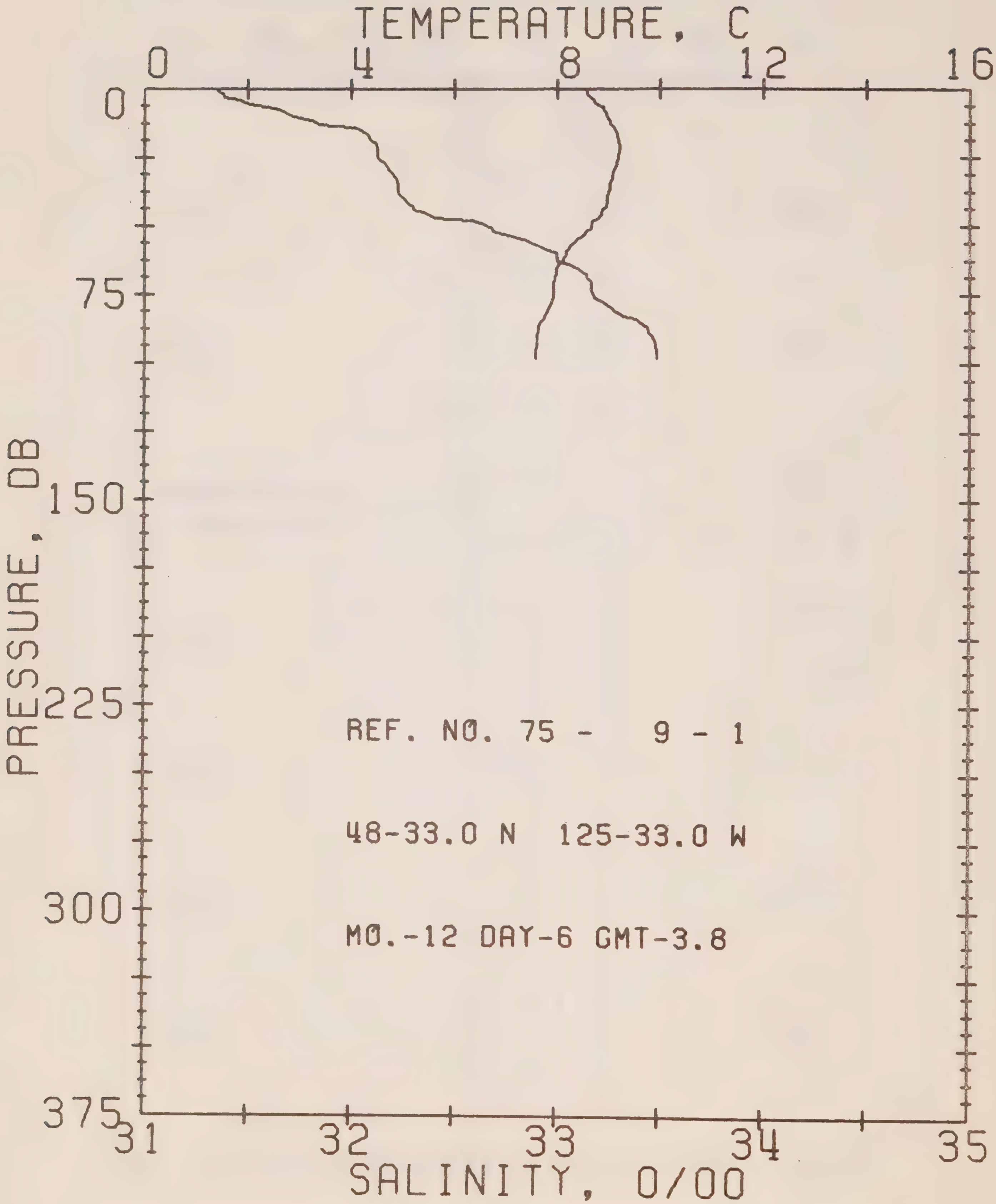


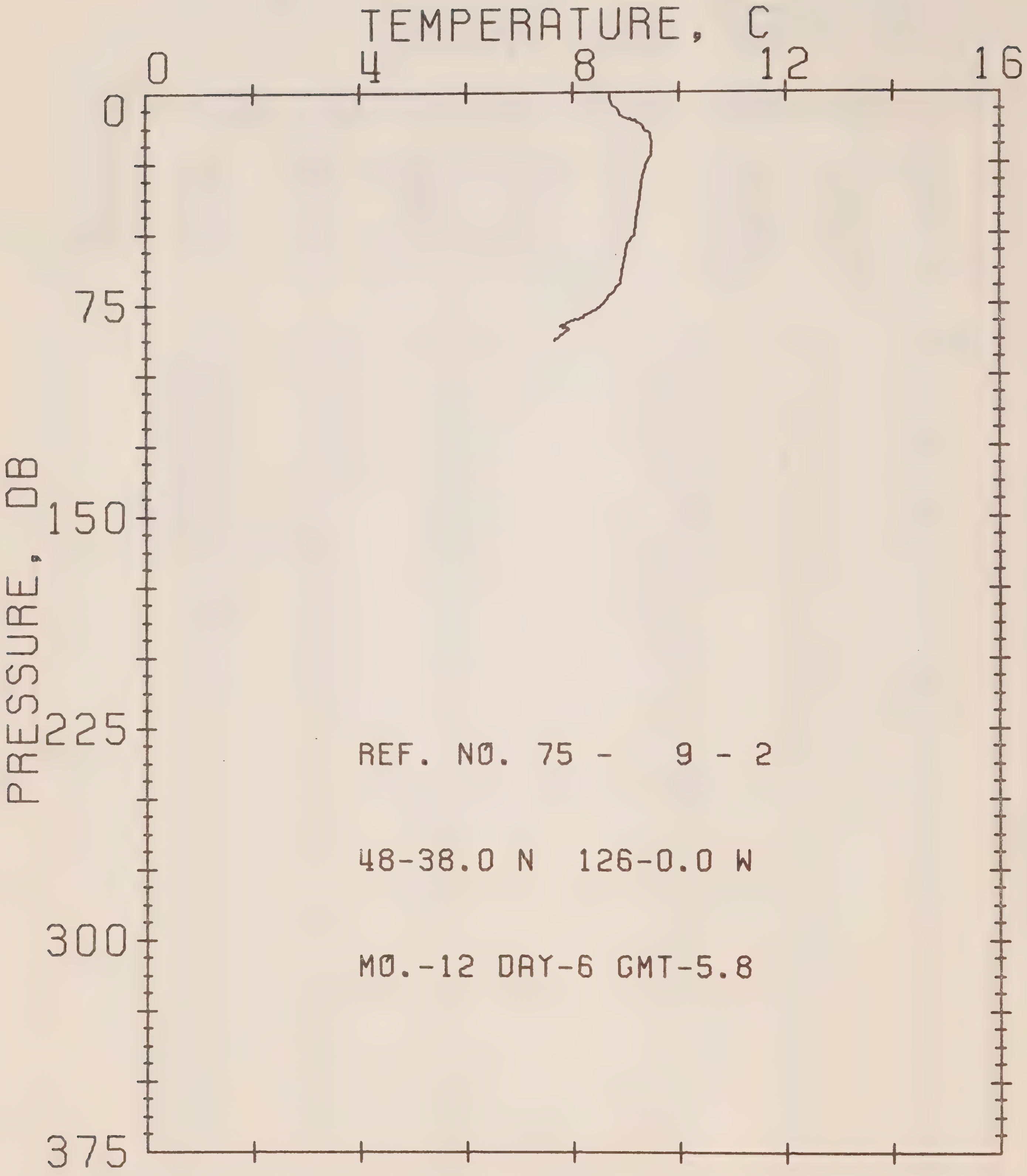

Figure 6. Temperature difference between hydro data and STP. P-75-9


TEMPERATURE, C
0
4
8
12
16
0
75
150
225
300
375
PRESSURE, DB
REF. NO. 75 - 9 - 1
48-33.0 N 125-33.0 W
MO.-12 DAY-6 GMT-3.8
31
32
33
34
35
SALINITY, 0/00

OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 1 DATE 6/12/75
POSITION 48-33.0N, 125-33.0W GMT 3.8
RESULTS OF STP CAST 79 POINTS TAKEN FROM ANALOG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | POT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 8.55 | 31.35 | 0 | 24.36 | 357.9 | 0.0 | 0.0 | 1480. |
| 10 | 8.97 | 31.72 | 10 | 24.58 | 336.8 | 0.35 | 0.02 | 1483. |
| 20 | 9.21 | 32.12 | 20 | 24.86 | 310.8 | 0.67 | 0.07 | 1484. |
| 30 | 9.12 | 32.19 | 30 | 24.93 | 304.4 | 0.98 | 0.14 | 1484. |
| 50 | 8.68 | 32.66 | 50 | 25.36 | 263.4 | 1.56 | 0.38 | 1483. |
| 75 | 7.94 | 33.17 | 75 | 25.87 | 215.0 | 2.14 | 0.75 | 1482. |

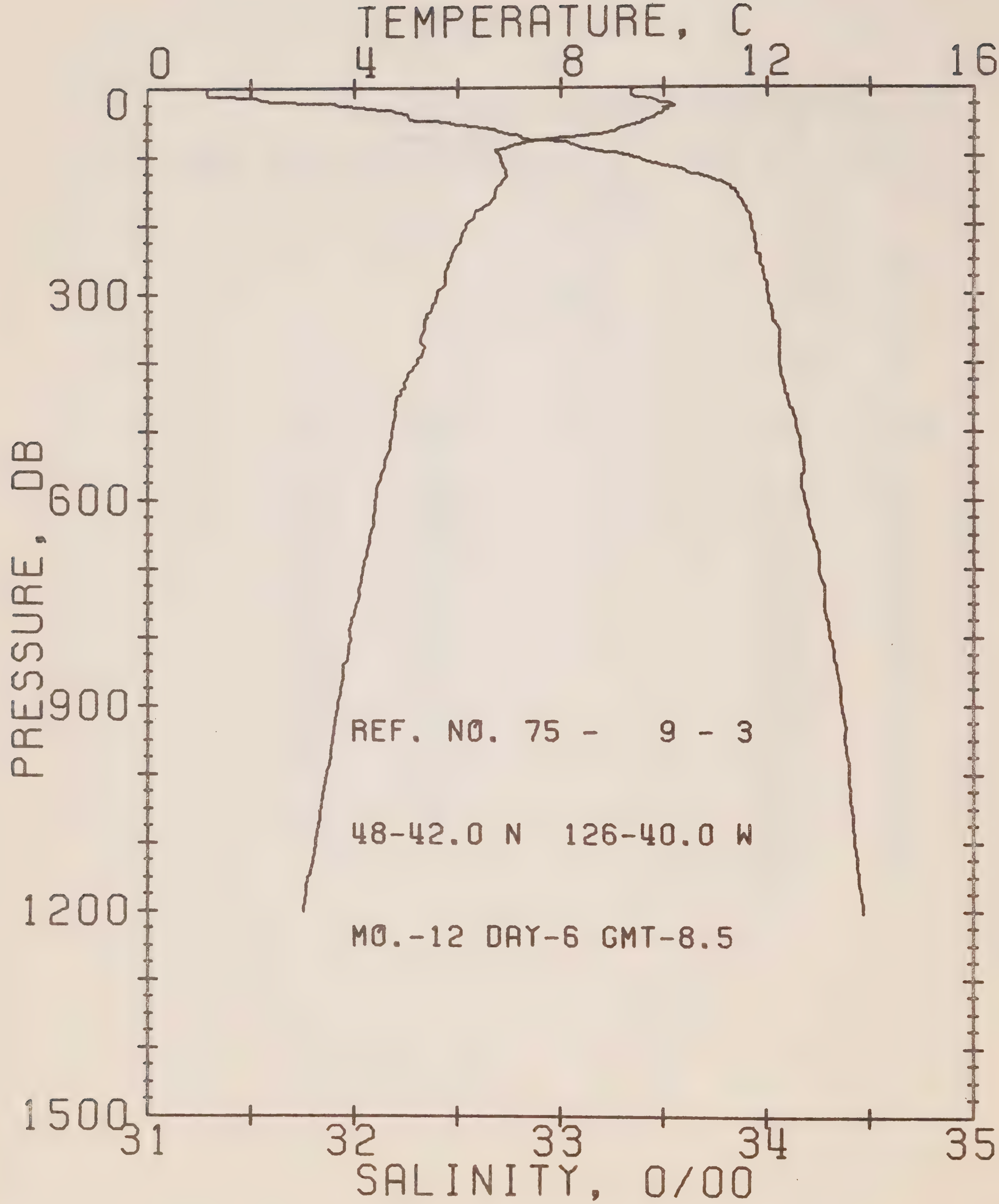
| DEPTH | TEMP | SAL | DEPTH | TEMP | SAL |
|---|---|---|---|---|---|
| 0. | 8.55 | 31.35 | 46. | 8.88 | 32.38 |
| 1. | 8.59 | 31.36 | 47. | 8.84 | 32.40 |
| 2. | 8.59 | 31.38 | 48. | 8.72 | 32.59 |
| 3. | 8.63 | 31.38 | 49. | 8.70 | 32.63 |
| 4. | 8.70 | 31.46 | 50. | 8.68 | 32.66 |
| 5. | 8.71 | 31.48 | 51. | 8.66 | 32.68 |
| 6. | 8.82 | 31.54 | 52. | 8.59 | 32.69 |
| 7. | 8.90 | 31.63 | 53. | 8.56 | 32.74 |
| 8. | 8.91 | 31.67 | 54. | 8.49 | 32.79 |
| 9. | 8.95 | 31.69 | 55. | 8.41 | 32.84 |
| 10. | 8.97 | 31.72 | 57. | 8.29 | 32.90 |
| 11. | 8.98 | 31.78 | 59. | 8.22 | 32.96 |
| 12. | 9.03 | 31.83 | 60. | 8.19 | 33.00 |
| 13. | 9.03 | 31.84 | 61. | 8.18 | 33.00 |
| 14. | 9.08 | 32.01 | 63. | 8.10 | 33.00 |
| 15. | 9.13 | 32.05 | 64. | 8.04 | 33.06 |
| 17. | 9.17 | 32.08 | 66. | 8.00 | 33.11 |
| 18. | 9.18 | 32.09 | 68. | 7.99 | 33.15 |
| 19. | 9.19 | 32.10 | 69. | 7.98 | 33.15 |
| 20. | 9.21 | 32.12 | 70. | 7.97 | 33.16 |
| 21. | 9.22 | 32.12 | 71. | 7.96 | 33.17 |
| 22. | 9.23 | 32.13 | 72. | 7.96 | 33.17 |
| 23. | 9.23 | 32.13 | 74. | 7.95 | 33.17 |
| 25. | 9.21 | 32.13 | 76. | 7.94 | 33.18 |
| 26. | 9.19 | 32.14 | 78. | 7.91 | 33.23 |
| 27. | 9.17 | 32.16 | 80. | 7.86 | 33.27 |
| 28. | 9.16 | 32.17 | 81. | 7.85 | 33.28 |
| 30. | 9.12 | 32.19 | 82. | 7.81 | 33.31 |
| 31. | 9.10 | 32.20 | 83. | 7.79 | 33.32 |
| 32. | 9.09 | 32.21 | 84. | 7.75 | 33.39 |
| 33. | 9.08 | 32.22 | 85. | 7.70 | 33.40 |
| 34. | 9.06 | 32.22 | 86. | 7.67 | 33.42 |
| 35. | 9.04 | 32.23 | 87. | 7.66 | 33.44 |
| 37. | 9.03 | 32.23 | 89. | 7.65 | 33.45 |
| 38. | 9.02 | 32.23 | 90. | 7.64 | 33.46 |
| 40. | 8.99 | 32.25 | 91. | 7.63 | 33.47 |
| 42. | 8.99 | 32.28 | 93. | 7.62 | 33.48 |
| 43. | 8.95 | 32.30 | 97. | 7.60 | 33.49 |
| 44. | 8.91 | 32.30 | 98. | 7.60 | 33.49 |
| 45. | 8.88 | 32.35 | | | |


TEMPERATURE, C
0
4
8
12
16
0
75
150
225
300
375
PRESSURE, DB
REF. NO. 75 - 9 - 2
48-38.0 N 126-0.0 W
MO.-12 DAY-6 GMT-5.8

OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 2 DATE 6/12/75
POSITION 48-38.0N, 126- 0.0W GMT 5.8
RESULTS OF STP CAST 35 POINTS TAKEN FROM ANALOG TRACE

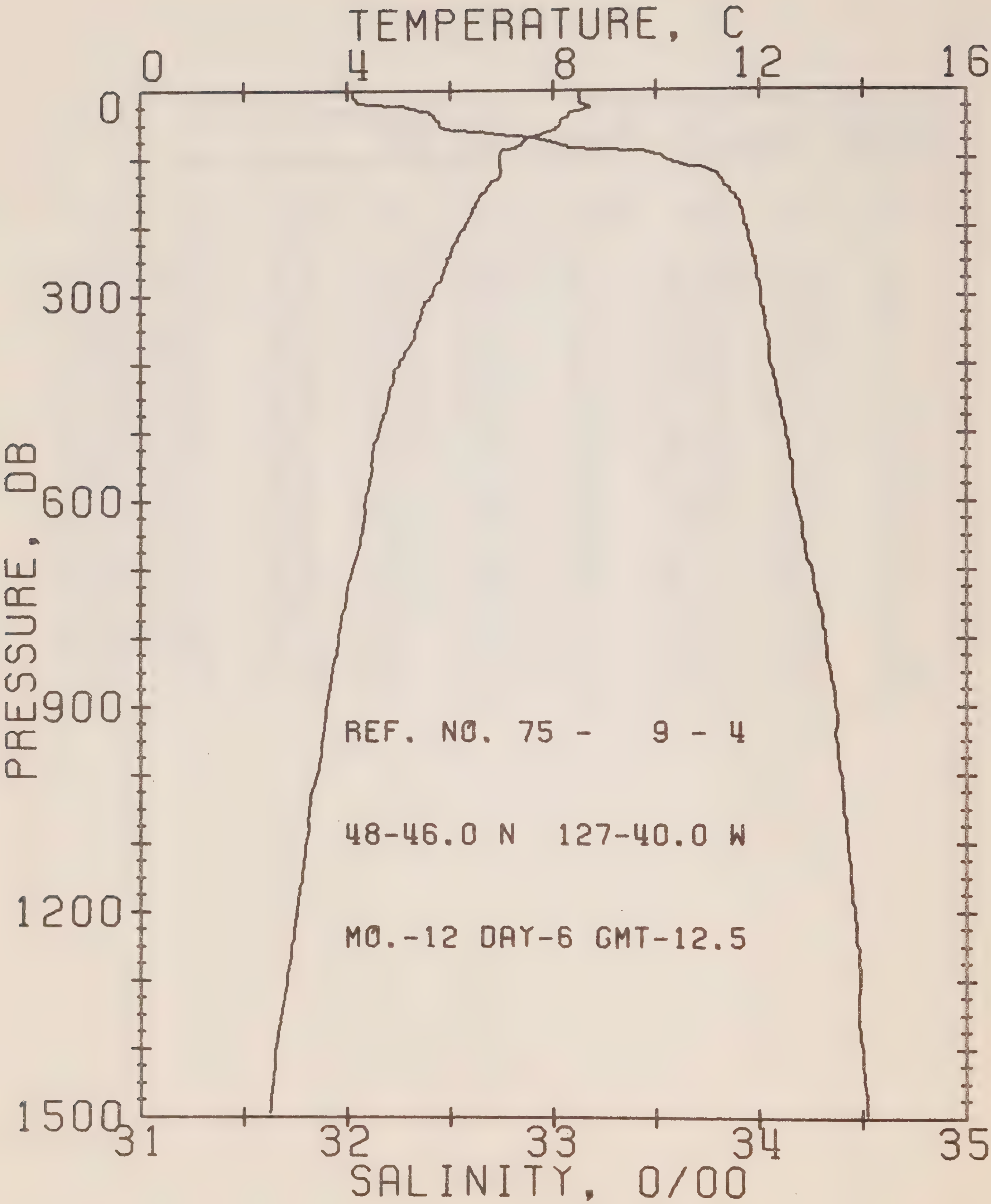
| PRESS | TEMP | DEPTH |
|---|---|---|
| 0 | 8.69 | 0 |
| 10 | 9.16 | 10 |
| 20 | 9.49 | 20 |
| 30 | 9.33 | 31 |
| 50 | 9.17 | 51 |
| 75 | 8.59 | 76 |

| DEPTH | TEMP | DEPTH | TEMP |
|---|---|---|---|
| 0. | 8.69 | 48. | 9.19 |
| 3. | 8.69 | 50. | 9.17 |
| 4. | 8.72 | 51. | 9.16 |
| 6. | 8.82 | 54. | 9.05 |
| 8. | 8.88 | 58. | 9.00 |
| 9. | 8.96 | 62. | 8.97 |
| 10. | 9.16 | 64. | 8.94 |
| 12. | 9.32 | 68. | 8.90 |
| 13. | 9.33 | 75. | 8.59 |
| 15. | 9.46 | 76. | 8.53 |
| 20. | 9.49 | 78. | 8.36 |
| 23. | 9.48 | 79. | 8.23 |
| 25. | 9.41 | 80. | 8.21 |
| 32. | 9.30 | 81. | 7.97 |
| 33. | 9.30 | 83. | 7.75 |
| 41. | 9.25 | 84. | 7.94 |
| 43. | 9.22 | 88. | 7.66 |
| 46. | 9.20 | | |


TEMPERATURE, C
0
4
8
12
16
PRESSURE, DB
0
300
600
900
1200
1500
REF. NO. 75 - 9 - 3
48-42.0 N 126-40.0 W
MO.-12 DAY-6 GMT-8.5
31
32
33
34
35
SALINITY, 0/00

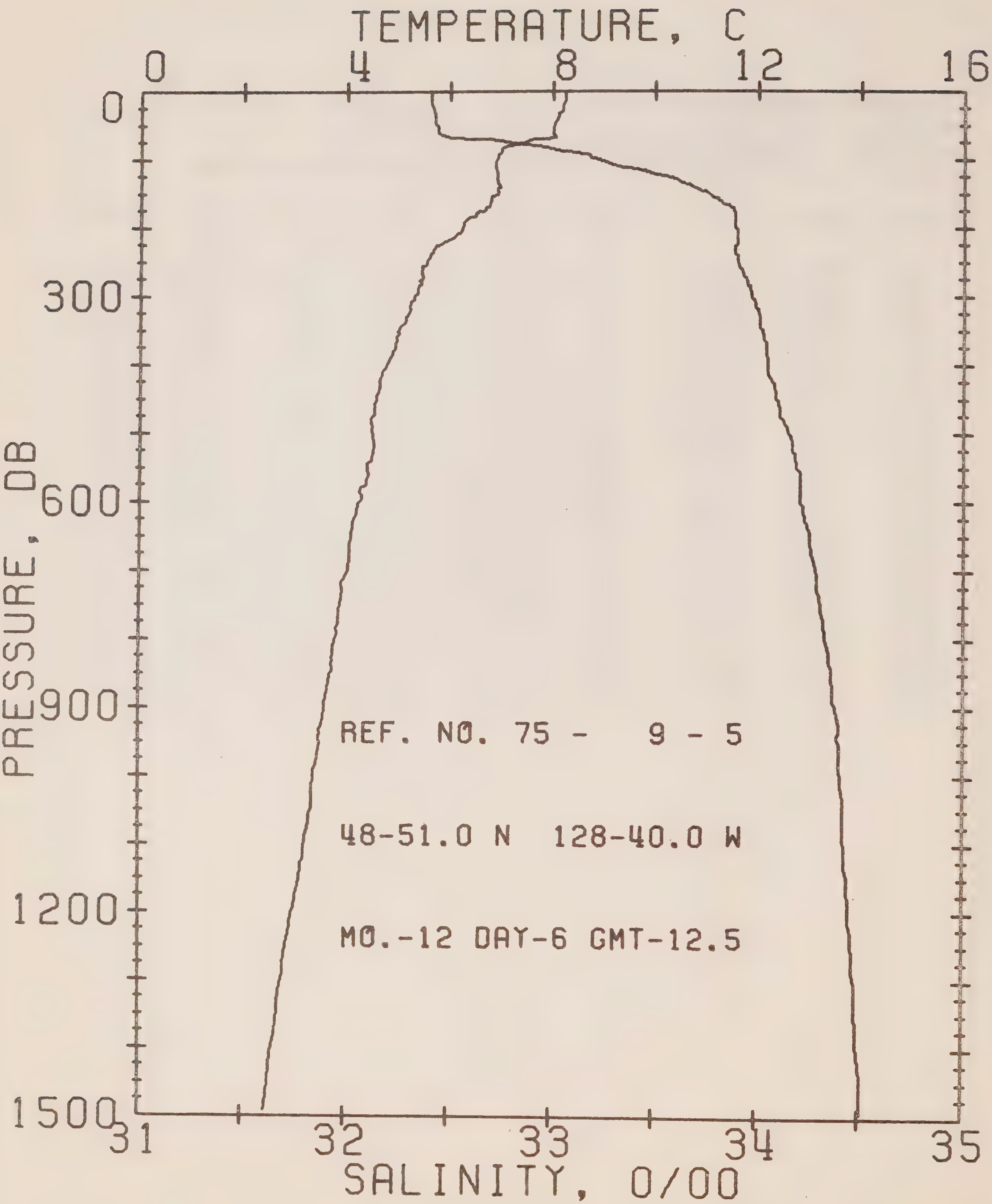
OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 3 DATE 6/12/75
POSITION 48-42.0N, 126-40.0W GMT 8.5
RESULTS OF STP CAST 348 POINTS TAKEN FROM ANALOG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | POT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 9.40 | 31.29 | 0 | 24.18 | 374.7 | 0.0 | 0.0 | 1483. |
| 10 | 9.37 | 31.29 | 10 | 24.19 | 374.7 | 0.37 | 0.02 | 1483. |
| 20 | 9.85 | 31.58 | 20 | 24.34 | 360.3 | 0.74 | 0.07 | 1486. |
| 30 | 9.98 | 32.08 | 30 | 24.70 | 325.8 | 1.08 | 0.16 | 1487. |
| 50 | 9.59 | 32.41 | 50 | 25.02 | 295.6 | 1.71 | 0.42 | 1486. |
| 75 | 7.63 | 32.87 | 75 | 25.68 | 233.3 | 2.37 | 0.84 | 1480. |
| 100 | 6.82 | 33.34 | 99 | 26.16 | 188.0 | 2.89 | 1.30 | 1478. |
| 125 | 6.93 | 33.63 | 124 | 26.37 | 168.1 | 3.33 | 1.81 | 1479. |
| 150 | 6.73 | 33.85 | 149 | 26.57 | 149.5 | 3.73 | 2.36 | 1479. |
| 175 | 6.47 | 33.90 | 174 | 26.65 | 142.7 | 4.10 | 2.96 | 1478. |
| 200 | 6.16 | 33.93 | 199 | 26.71 | 136.9 | 4.44 | 3.63 | 1478. |
| 225 | 6.04 | 33.94 | 223 | 26.74 | 135.0 | 4.78 | 4.37 | 1477. |
| 250 | 5.86 | 33.97 | 248 | 26.78 | 130.8 | 5.12 | 5.17 | 1477. |
| 300 | 5.59 | 34.00 | 298 | 26.84 | 125.8 | 5.76 | 6.97 | 1477. |
| 400 | 5.22 | 34.06 | 397 | 26.93 | 118.1 | 6.97 | 11.28 | 1477. |
| 500 | 4.73 | 34.15 | 496 | 27.05 | 106.8 | 8.09 | 16.40 | 1477. |
| 600 | 4.40 | 34.18 | 595 | 27.12 | 101.5 | 9.12 | 22.21 | 1477. |
| 800 | 3.93 | 34.31 | 793 | 27.27 | 88.3 | 11.01 | 35.66 | 1479. |
| 1000 | 3.47 | 34.40 | 991 | 27.39 | 78.0 | 12.66 | 50.74 | 1480. |
| 1200 | 3.02 | 34.47 | 1188 | 27.49 | 68.9 | 14.14 | 67.24 | 1482. |


TEMPERATURE, C
0
4
8
12
16
0
300
600
900
1200
1500
PRESSURE, DB
REF. NO. 75 - 9 - 4
48-46.0 N 127-40.0 W
MO.-12 DAY-6 GMT-12.5
31
32
33
34
35
SALINITY, 0/00

OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 4 DATE 6/12/75
POSITION 48-46.0N, 127-40.0W GMT 12.5
RESULTS OF STP CAST 366 POINTS TAKEN FROM ANALOG TRACE

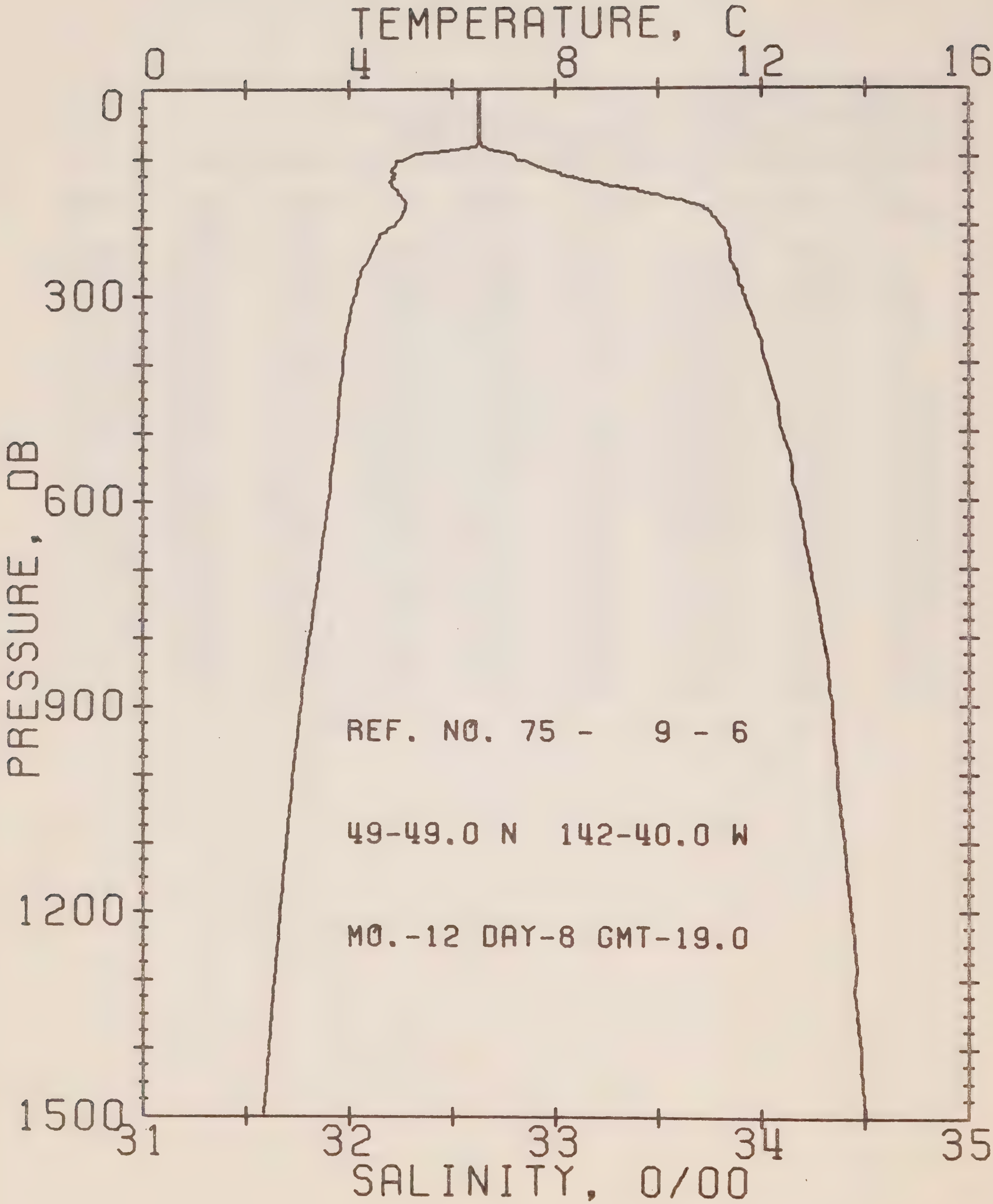
| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | PCT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 8.53 | 32.03 | 0 | 24.89 | 307.0 | 0.0 | 0.0 | 1481. |
| 10 | 8.52 | 32.03 | 10 | 24.89 | 307.2 | 0.31 | 0.02 | 1481. |
| 20 | 8.55 | 32.11 | 20 | 24.95 | 301.9 | 0.61 | 0.06 | 1482. |
| 30 | 8.50 | 32.36 | 30 | 25.15 | 282.8 | 0.90 | 0.14 | 1482. |
| 50 | 8.13 | 32.45 | 50 | 25.28 | 271.1 | 1.45 | 0.36 | 1481. |
| 75 | 7.41 | 32.99 | 75 | 25.81 | 221.1 | 2.08 | 0.75 | 1479. |
| 100 | 6.97 | 33.54 | 99 | 26.30 | 175.0 | 2.57 | 1.19 | 1479. |
| 125 | 6.95 | 33.80 | 124 | 26.51 | 155.7 | 2.98 | 1.66 | 1479. |
| 150 | 6.63 | 33.87 | 149 | 26.60 | 146.7 | 3.36 | 2.19 | 1479. |
| 175 | 6.43 | 33.92 | 174 | 26.67 | 141.0 | 3.71 | 2.78 | 1478. |
| 200 | 6.27 | 33.94 | 199 | 26.70 | 137.6 | 4.06 | 3.45 | 1478. |
| 225 | 6.06 | 33.96 | 223 | 26.75 | 134.0 | 4.40 | 4.18 | 1478. |
| 250 | 5.93 | 33.98 | 248 | 26.78 | 131.0 | 4.73 | 4.98 | 1478. |
| 300 | 5.64 | 34.01 | 298 | 26.84 | 125.8 | 5.38 | 6.78 | 1477. |
| 400 | 5.00 | 34.05 | 397 | 26.95 | 116.2 | 6.58 | 11.08 | 1476. |
| 500 | 4.60 | 34.13 | 496 | 27.06 | 106.7 | 7.69 | 16.17 | 1476. |
| 600 | 4.34 | 34.18 | 595 | 27.12 | 100.9 | 8.73 | 21.98 | 1477. |
| 800 | 3.82 | 34.32 | 793 | 27.29 | 86.3 | 10.61 | 35.32 | 1478. |
| 1000 | 3.41 | 34.40 | 990 | 27.39 | 77.6 | 12.24 | 50.25 | 1480. |
| 1200 | 3.01 | 34.46 | 1188 | 27.48 | 69.6 | 13.71 | 66.69 | 1482. |



TEMPERATURE, C
0
4
8
12
16
0
300
600
900
1200
1500
PRESSURE, DB
REF. NO. 75 - 9 - 5
48-51.0 N 128-40.0 W
MO.-12 DAY-6 GMT-12.5
31
32
33
34
35
SALINITY, 0/00

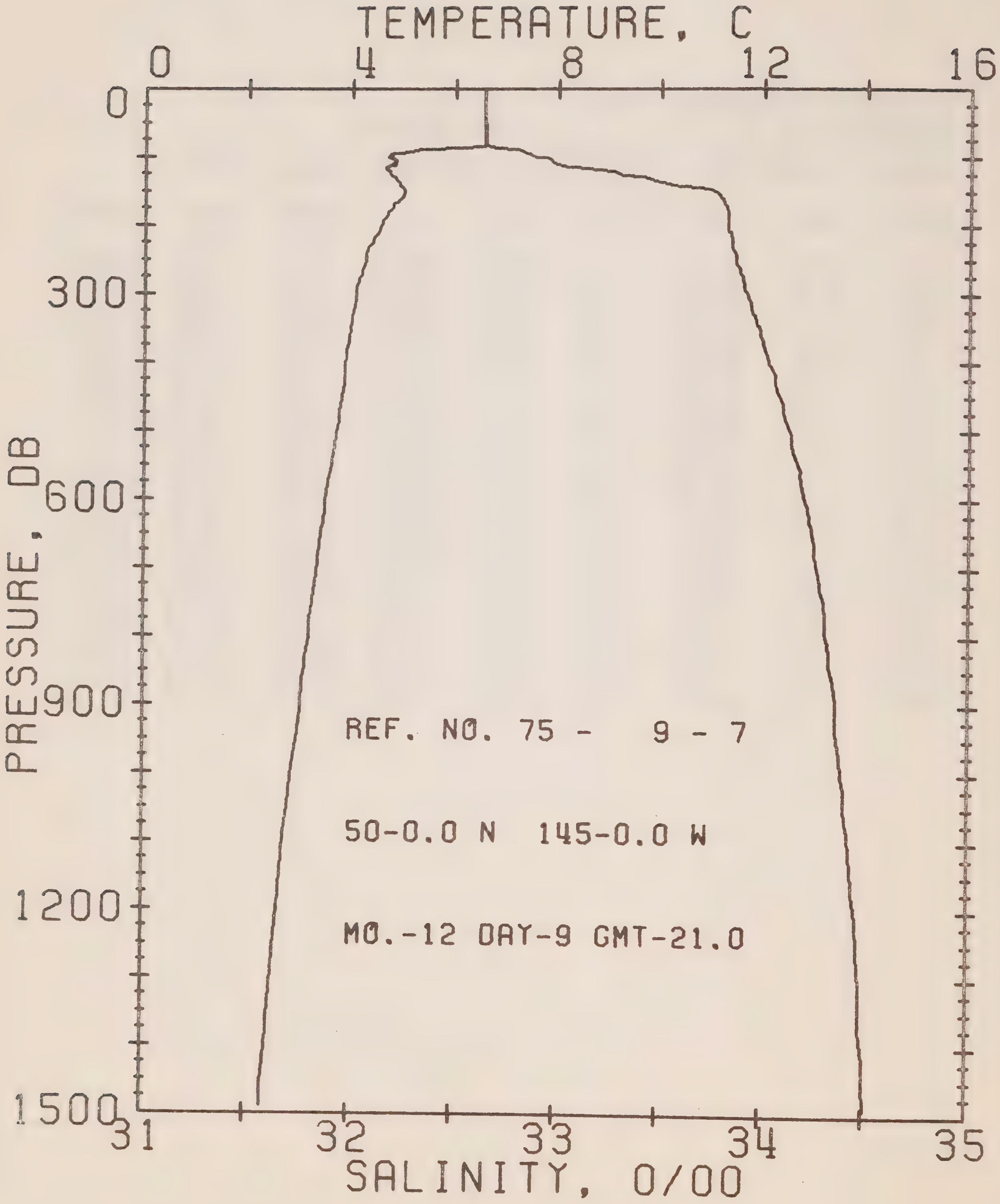
OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 5 DATE 6/12/75
POSITION 48-51.0N, 128-40.0W GMT 12.5
RESULTS OF STP CAST 373 POINTS TAKEN FROM ANALOG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | POT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 8.24 | 32.41 | 0 | 25.23 | 274.6 | 0.0 | 0.0 | 1480. |
| 10 | 8.24 | 32.41 | 10 | 25.23 | 275.0 | 0.27 | 0.01 | 1481. |
| 20 | 8.20 | 32.41 | 20 | 25.24 | 274.6 | 0.55 | 0.06 | 1481. |
| 30 | 8.18 | 32.42 | 30 | 25.25 | 273.8 | 0.82 | 0.13 | 1481. |
| 50 | 8.01 | 32.43 | 50 | 25.28 | 270.6 | 1.37 | 0.35 | 1480. |
| 75 | 7.45 | 32.81 | 75 | 25.66 | 235.4 | 2.03 | 0.77 | 1479. |
| 100 | 6.90 | 33.22 | 99 | 26.06 | 197.9 | 2.56 | 1.24 | 1478. |
| 125 | 6.93 | 33.56 | 124 | 26.32 | 173.3 | 3.03 | 1.77 | 1479. |
| 150 | 6.94 | 33.75 | 149 | 26.47 | 159.3 | 3.44 | 2.35 | 1480. |
| 175 | 6.61 | 33.88 | 174 | 26.61 | 146.0 | 3.82 | 2.98 | 1479. |
| 200 | 6.25 | 33.89 | 199 | 26.67 | 141.0 | 4.18 | 3.67 | 1478. |
| 225 | 5.81 | 33.89 | 223 | 26.73 | 135.6 | 4.53 | 4.42 | 1477. |
| 250 | 5.56 | 33.90 | 248 | 26.76 | 132.4 | 4.86 | 5.23 | 1476. |
| 300 | 5.33 | 33.97 | 298 | 26.85 | 125.0 | 5.50 | 7.03 | 1476. |
| 400 | 4.78 | 34.05 | 397 | 26.97 | 113.8 | 6.69 | 11.26 | 1475. |
| 500 | 4.52 | 34.15 | 496 | 27.08 | 104.3 | 7.78 | 16.25 | 1476. |
| 600 | 4.27 | 34.21 | 595 | 27.15 | 97.9 | 8.79 | 21.89 | 1477. |
| 800 | 3.80 | 34.33 | 793 | 27.30 | 85.3 | 10.61 | 34.82 | 1478. |
| 1000 | 3.39 | 34.41 | 990 | 27.40 | 76.6 | 12.21 | 49.54 | 1480. |
| 1200 | 2.98 | 34.45 | 1188 | 27.47 | 70.0 | 13.69 | 66.04 | 1481. |


TEMPERATURE, C
0
4
8
12
16
0
300
600
900
1200
1500
PRESSURE, DB
REF. NO. 75 - 9 - 6
49-49.0 N 142-40.0 W
MO.-12 DAY-8 GMT-19.0
31
32
33
34
35
SALINITY, 0/00

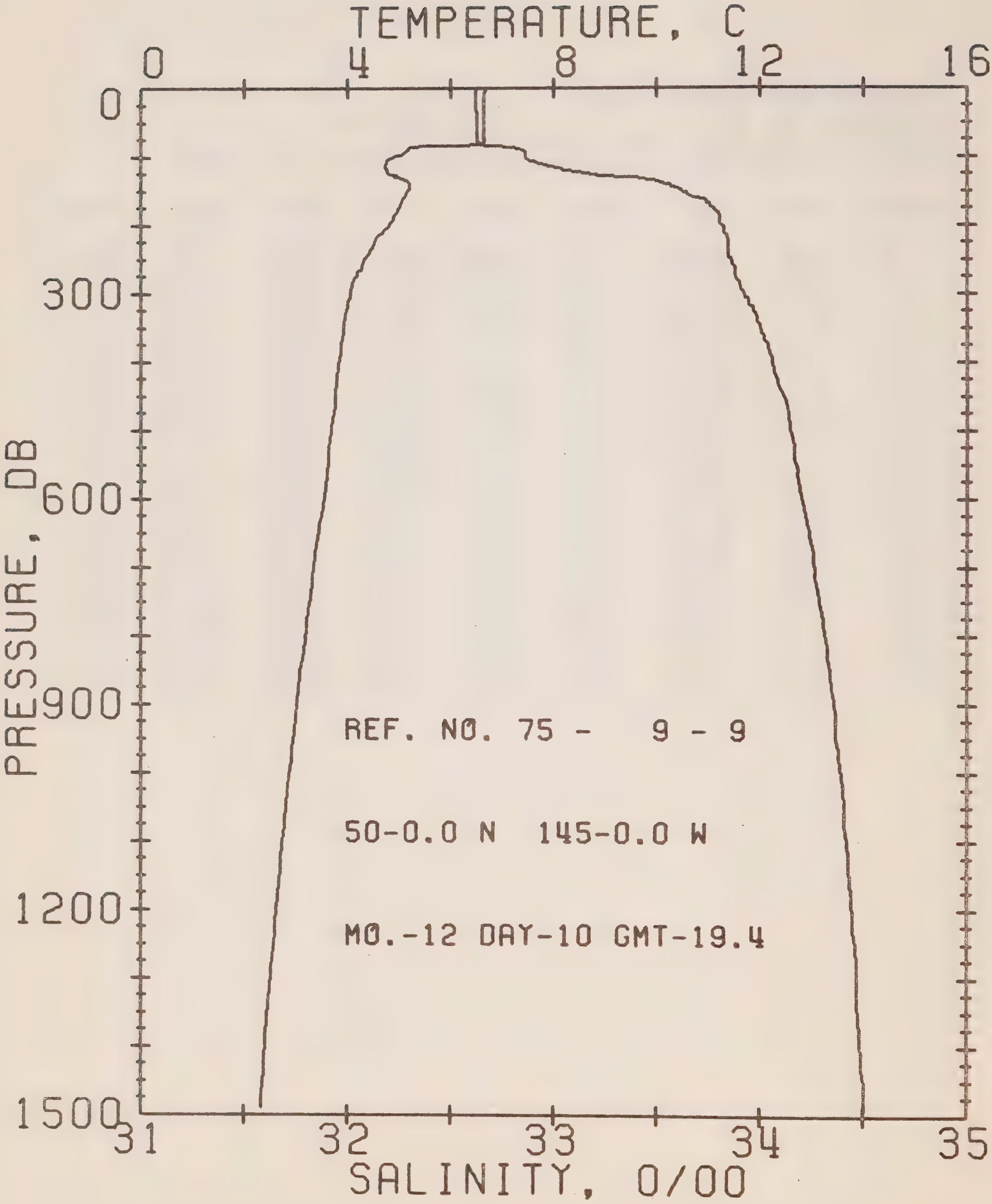
OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 6 DATE 8/12/75
POSITION 49-49.0N, 142-40.0W GMT 19.0
RESULTS OF STP CAST 238 POINTS TAKEN FROM ANALOG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | FCT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.54 | 32.63 | 0 | 25.64 | 235.9 | 0.0 | 0.0 | 1474. |
| 10 | 6.54 | 32.63 | 10 | 25.64 | 236.3 | 0.24 | 0.01 | 1474. |
| 20 | 6.54 | 32.63 | 20 | 25.64 | 236.4 | 0.47 | 0.05 | 1474. |
| 30 | 6.54 | 32.63 | 30 | 25.64 | 236.5 | 0.71 | 0.11 | 1475. |
| 50 | 6.54 | 32.63 | 50 | 25.64 | 236.7 | 1.18 | 0.30 | 1475. |
| 75 | 6.53 | 32.63 | 75 | 25.64 | 237.0 | 1.77 | 0.68 | 1475. |
| 100 | 5.17 | 32.80 | 99 | 25.94 | 208.4 | 2.34 | 1.18 | 1470. |
| 125 | 4.89 | 33.03 | 124 | 26.15 | 188.5 | 2.83 | 1.74 | 1470. |
| 150 | 4.95 | 33.40 | 149 | 26.44 | 161.7 | 3.27 | 2.35 | 1471. |
| 175 | 5.08 | 33.72 | 174 | 26.68 | 139.5 | 3.64 | 2.97 | 1472. |
| 200 | 4.85 | 33.80 | 199 | 26.77 | 131.1 | 3.98 | 3.61 | 1472. |
| 225 | 4.52 | 33.84 | 223 | 26.83 | 124.8 | 4.30 | 4.30 | 1471. |
| 250 | 4.35 | 33.85 | 248 | 26.86 | 122.4 | 4.60 | 5.05 | 1471. |
| 300 | 4.12 | 33.91 | 298 | 26.93 | 116.0 | 5.20 | 6.71 | 1471. |
| 400 | 3.88 | 34.02 | 397 | 27.04 | 106.3 | 6.30 | 10.63 | 1472. |
| 500 | 3.75 | 34.10 | 496 | 27.12 | 99.8 | 7.32 | 15.33 | 1473. |
| 600 | 3.58 | 34.18 | 595 | 27.20 | 92.9 | 8.28 | 20.70 | 1474. |
| 800 | 3.21 | 34.30 | 793 | 27.33 | 81.3 | 10.03 | 33.10 | 1476. |
| 1000 | 2.90 | 34.37 | 990 | 27.41 | 73.9 | 11.57 | 47.25 | 1478. |
| 1200 | 2.64 | 34.43 | 1188 | 27.49 | 67.5 | 12.99 | 63.10 | 1480. |


TEMPERATURE, C
0
4
8
12
16
0
300
600
900
1200
1500
PRESSURE, DB
REF. NO. 75 - 9 - 7
50-0.0 N 145-0.0 W
MO.-12 DAY-9 GMT-21.0
31
32
33
34
35
SALINITY, 0/00

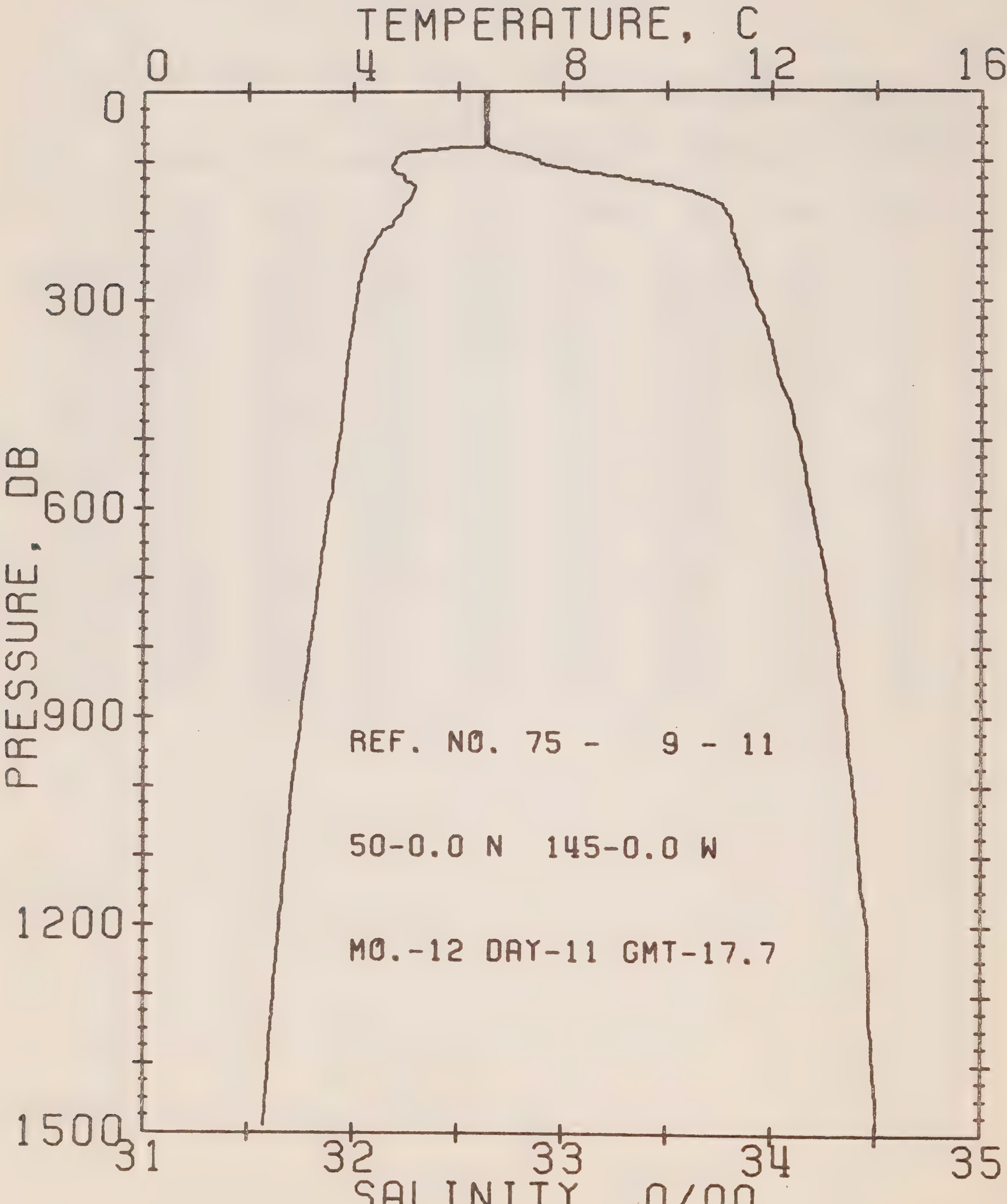
OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 7 DATE 9/12/75
POSITION 50- 0.0N, 145- 0.0W GMT 21.0
RESULTS OF STP CAST 216 POINTS TAKEN FROM ANALOG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | PCT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.56 | 32.64 | 0 | 25.64 | 235.4 | 0.0 | 0.0 | 1474. |
| 10 | 6.56 | 32.64 | 10 | 25.64 | 235.7 | 0.24 | 0.01 | 1474. |
| 20 | 6.56 | 32.64 | 20 | 25.64 | 235.8 | 0.47 | 0.05 | 1475. |
| 30 | 6.55 | 32.64 | 30 | 25.65 | 235.9 | 0.71 | 0.11 | 1475. |
| 50 | 6.56 | 32.64 | 50 | 25.65 | 236.1 | 1.18 | 0.30 | 1475. |
| 75 | 6.57 | 32.65 | 75 | 25.65 | 235.9 | 1.77 | 0.68 | 1475. |
| 100 | 4.70 | 32.89 | 99 | 26.06 | 196.8 | 2.31 | 1.15 | 1469. |
| 125 | 4.74 | 33.31 | 124 | 26.39 | 165.9 | 2.77 | 1.68 | 1470. |
| 150 | 5.01 | 33.76 | 149 | 26.72 | 135.5 | 3.15 | 2.21 | 1472. |
| 175 | 4.77 | 33.82 | 174 | 26.79 | 128.5 | 3.48 | 2.75 | 1471. |
| 200 | 4.55 | 33.83 | 199 | 26.82 | 125.6 | 3.79 | 3.36 | 1471. |
| 225 | 4.39 | 33.85 | 223 | 26.86 | 122.7 | 4.10 | 4.03 | 1471. |
| 250 | 4.26 | 33.87 | 248 | 26.89 | 120.0 | 4.41 | 4.76 | 1471. |
| 300 | 4.09 | 33.92 | 298 | 26.95 | 114.7 | 4.99 | 6.41 | 1471. |
| 400 | 3.88 | 34.03 | 397 | 27.05 | 105.5 | 6.09 | 10.32 | 1472. |
| 500 | 3.72 | 34.13 | 496 | 27.15 | 96.9 | 7.10 | 14.95 | 1473. |
| 600 | 3.51 | 34.21 | 595 | 27.23 | 89.7 | 8.04 | 20.17 | 1474. |
| 800 | 3.19 | 34.31 | 793 | 27.34 | 79.9 | 9.72 | 32.19 | 1476. |
| 1000 | 2.86 | 34.39 | 990 | 27.43 | 72.0 | 11.24 | 46.03 | 1478. |
| 1200 | 2.60 | 34.45 | 1188 | 27.51 | 65.5 | 12.61 | 61.40 | 1480. |


TEMPERATURE, C
0
4
8
12
16
PRESSURE, DB
0
300
600
900
1200
1500
REF. NO. 75 - 9 - 9
50-0.0 N 145-0.0 W
MO.-12 DAY-10 GMT-19.4
31
32
33
34
35
SALINITY, 0/00

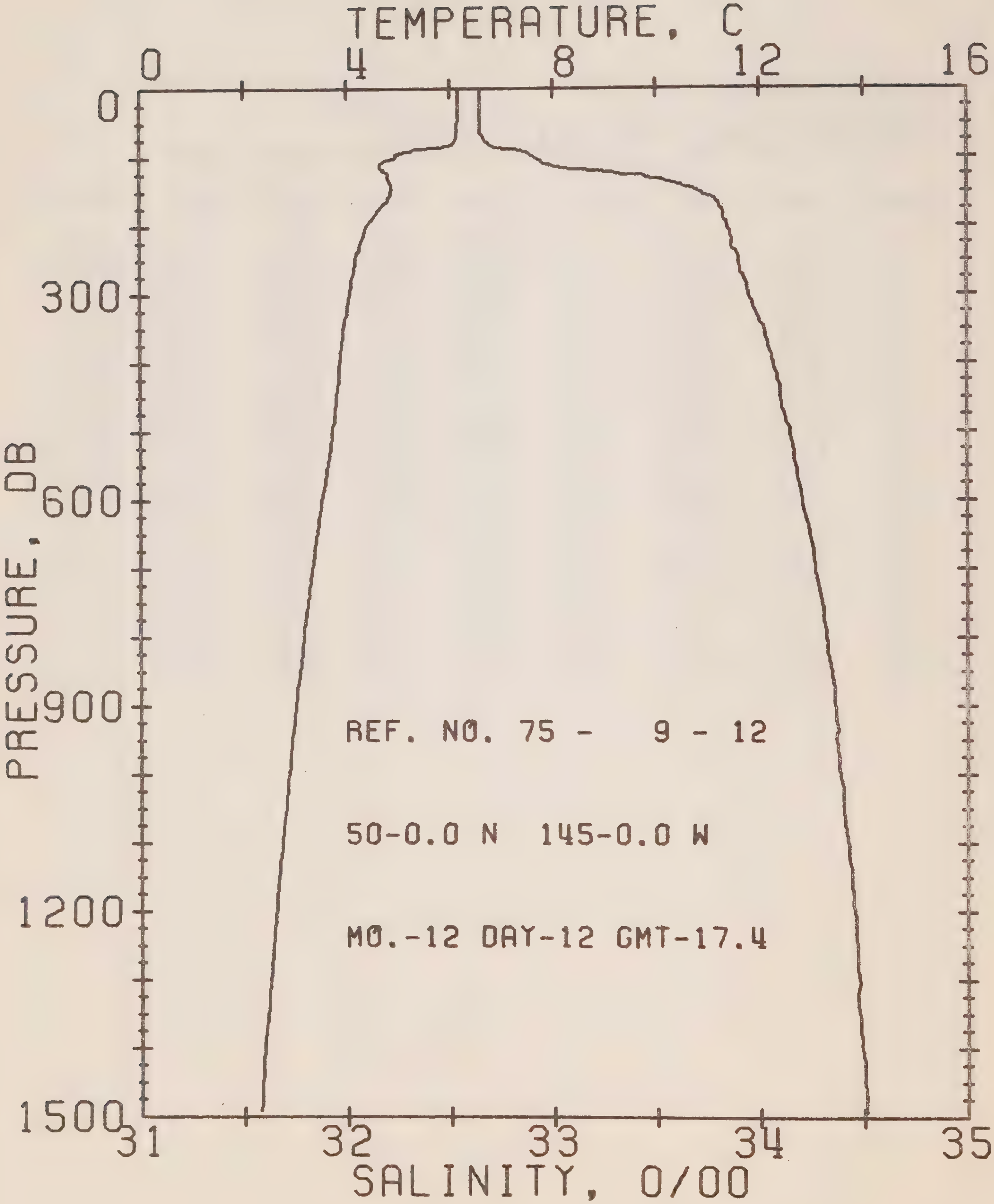
OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 9 DATE 10/12/75
POSITION 50- 0.0N, 145- 0.0W GMT 19.4
RESULTS OF STP CAST 265 POINTS TAKEN FROM ANALOG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | PCT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.67 | 32.62 | 0 | 25.61 | 238.3 | 0.0 | 0.0 | 1475. |
| 10 | 6.65 | 32.62 | 10 | 25.62 | 238.4 | 0.24 | 0.01 | 1475. |
| 20 | 6.65 | 32.62 | 20 | 25.62 | 238.5 | 0.48 | 0.05 | 1475. |
| 30 | 6.65 | 32.62 | 30 | 25.62 | 238.6 | 0.72 | 0.11 | 1475. |
| 50 | 6.65 | 32.63 | 50 | 25.62 | 238.1 | 1.19 | 0.30 | 1475. |
| 75 | 6.66 | 32.63 | 75 | 25.62 | 238.5 | 1.79 | 0.68 | 1476. |
| 100 | 4.92 | 32.86 | 99 | 26.01 | 201.3 | 2.33 | 1.17 | 1469. |
| 125 | 4.83 | 33.20 | 124 | 26.29 | 175.2 | 2.81 | 1.71 | 1470. |
| 150 | 5.17 | 33.62 | 149 | 26.59 | 147.7 | 3.21 | 2.27 | 1472. |
| 175 | 4.98 | 33.77 | 174 | 26.73 | 134.6 | 3.56 | 2.85 | 1472. |
| 200 | 4.80 | 33.81 | 199 | 26.78 | 129.5 | 3.89 | 3.48 | 1472. |
| 225 | 4.50 | 33.85 | 223 | 26.84 | 123.9 | 4.20 | 4.16 | 1471. |
| 250 | 4.31 | 33.86 | 248 | 26.87 | 121.2 | 4.51 | 4.90 | 1471. |
| 300 | 4.04 | 33.92 | 298 | 26.95 | 114.4 | 5.10 | 6.56 | 1470. |
| 400 | 3.82 | 34.06 | 397 | 27.08 | 102.4 | 6.17 | 10.38 | 1471. |
| 500 | 3.68 | 34.15 | 496 | 27.17 | 95.0 | 7.16 | 14.89 | 1473. |
| 600 | 3.53 | 34.20 | 595 | 27.22 | 90.3 | 8.08 | 20.08 | 1474. |
| 800 | 3.18 | 34.32 | 793 | 27.35 | 79.5 | 9.77 | 32.10 | 1476. |
| 1000 | 2.88 | 34.39 | 990 | 27.44 | 71.9 | 11.28 | 45.90 | 1478. |
| 1200 | 2.62 | 34.44 | 1188 | 27.50 | 66.3 | 12.66 | 61.35 | 1480. |


TEMPERATURE, C
0
4
8
12
16
0
300
600
900
1200
1500
PRESSURE, DB
REF. NØ. 75 - 9 - 11
50-0.0 N 145-0.0 W
MØ.-12 DAY-11 GMT-17.7
31
32
33
34
35
SALINITY, 0/00

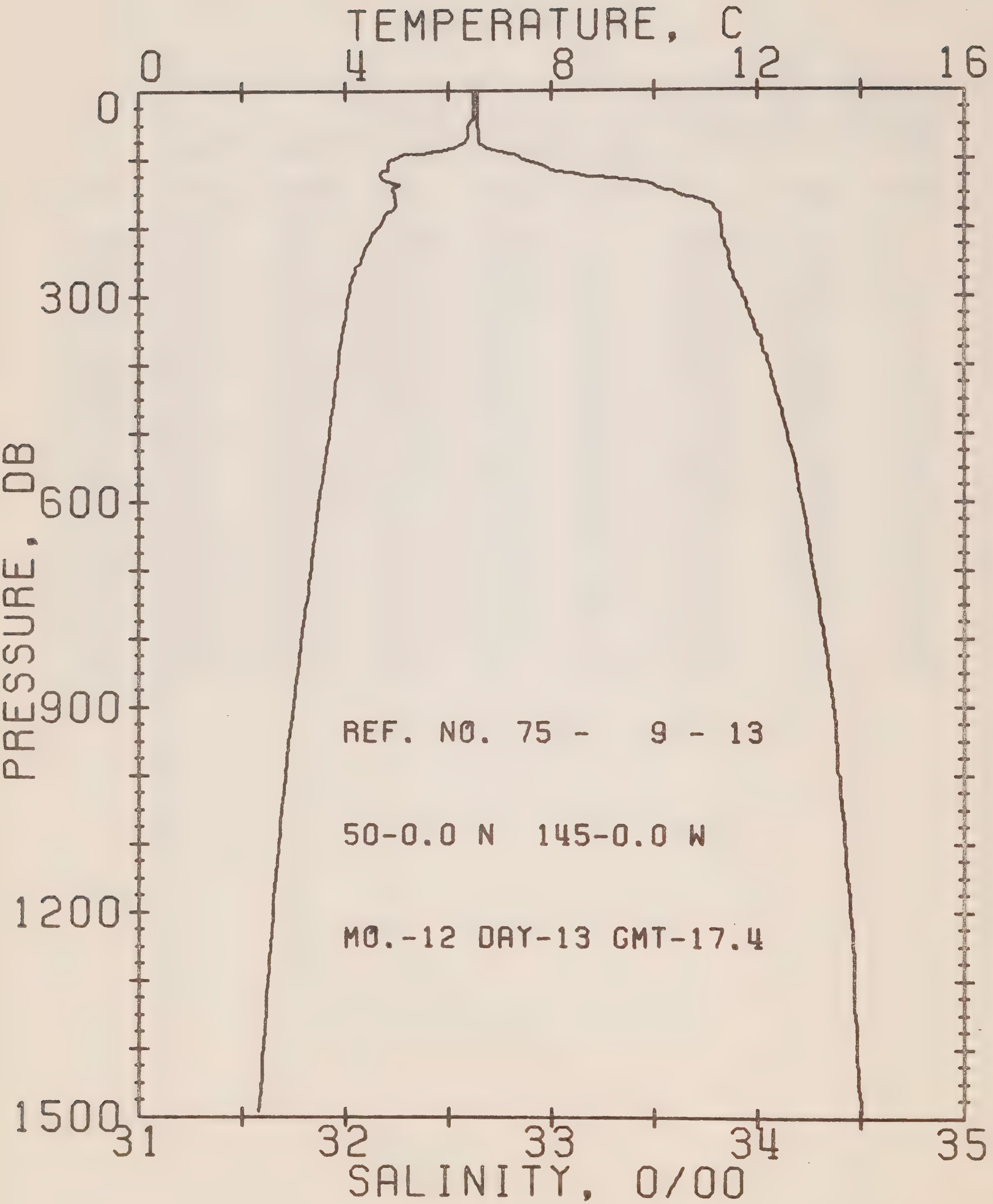
OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 11 DATE 11/12/75
POSITION 50- 0.0N, 145- 0.0W GMT 17.7
RESULTS OF STP CAST 275 POINTS TAKEN FROM ANALOG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | PCT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.56 | 32.63 | 0 | 25.64 | 236.2 | 0.0 | 0.0 | 1474. |
| 10 | 6.57 | 32.63 | 10 | 25.64 | 236.6 | 0.24 | 0.01 | 1474. |
| 20 | 6.55 | 32.63 | 20 | 25.64 | 236.5 | 0.47 | 0.05 | 1474. |
| 30 | 6.54 | 32.63 | 30 | 25.64 | 236.6 | 0.71 | 0.11 | 1475. |
| 50 | 6.52 | 32.64 | 50 | 25.65 | 235.8 | 1.18 | 0.30 | 1475. |
| 75 | 6.52 | 32.64 | 75 | 25.65 | 236.1 | 1.77 | 0.68 | 1475. |
| 100 | 4.78 | 32.89 | 99 | 26.05 | 197.6 | 2.31 | 1.15 | 1469. |
| 125 | 4.96 | 33.30 | 124 | 26.36 | 169.1 | 2.77 | 1.69 | 1471. |
| 150 | 5.10 | 33.65 | 149 | 26.62 | 144.7 | 3.16 | 2.23 | 1472. |
| 175 | 4.89 | 33.78 | 174 | 26.75 | 132.8 | 3.51 | 2.79 | 1472. |
| 200 | 4.53 | 33.81 | 199 | 26.81 | 126.9 | 3.83 | 3.41 | 1471. |
| 225 | 4.31 | 33.83 | 223 | 26.85 | 123.1 | 4.14 | 4.09 | 1470. |
| 250 | 4.19 | 33.87 | 248 | 26.89 | 119.5 | 4.45 | 4.83 | 1470. |
| 300 | 4.04 | 33.92 | 298 | 26.95 | 114.0 | 5.03 | 6.46 | 1470. |
| 400 | 3.87 | 34.03 | 397 | 27.05 | 105.4 | 6.12 | 10.35 | 1472. |
| 500 | 3.73 | 34.13 | 496 | 27.15 | 96.8 | 7.13 | 14.97 | 1473. |
| 600 | 3.51 | 34.20 | 595 | 27.22 | 90.5 | 8.07 | 20.23 | 1474. |
| 800 | 3.16 | 34.32 | 793 | 27.35 | 79.1 | 9.76 | 32.28 | 1475. |
| 1000 | 2.84 | 34.39 | 990 | 27.44 | 71.5 | 11.27 | 46.08 | 1477. |
| 1200 | 2.58 | 34.46 | 1188 | 27.51 | 64.9 | 12.64 | 61.42 | 1480. |


TEMPERATURE, C
0
4
8
12
16
0
300
600
900
1200
1500
PRESSURE, DB
REF. NO. 75 - 9 - 12
50-0.0 N 145-0.0 W
MO.-12 DAY-12 GMT-17.4
31
32
33
34
35
SALINITY, 0/00

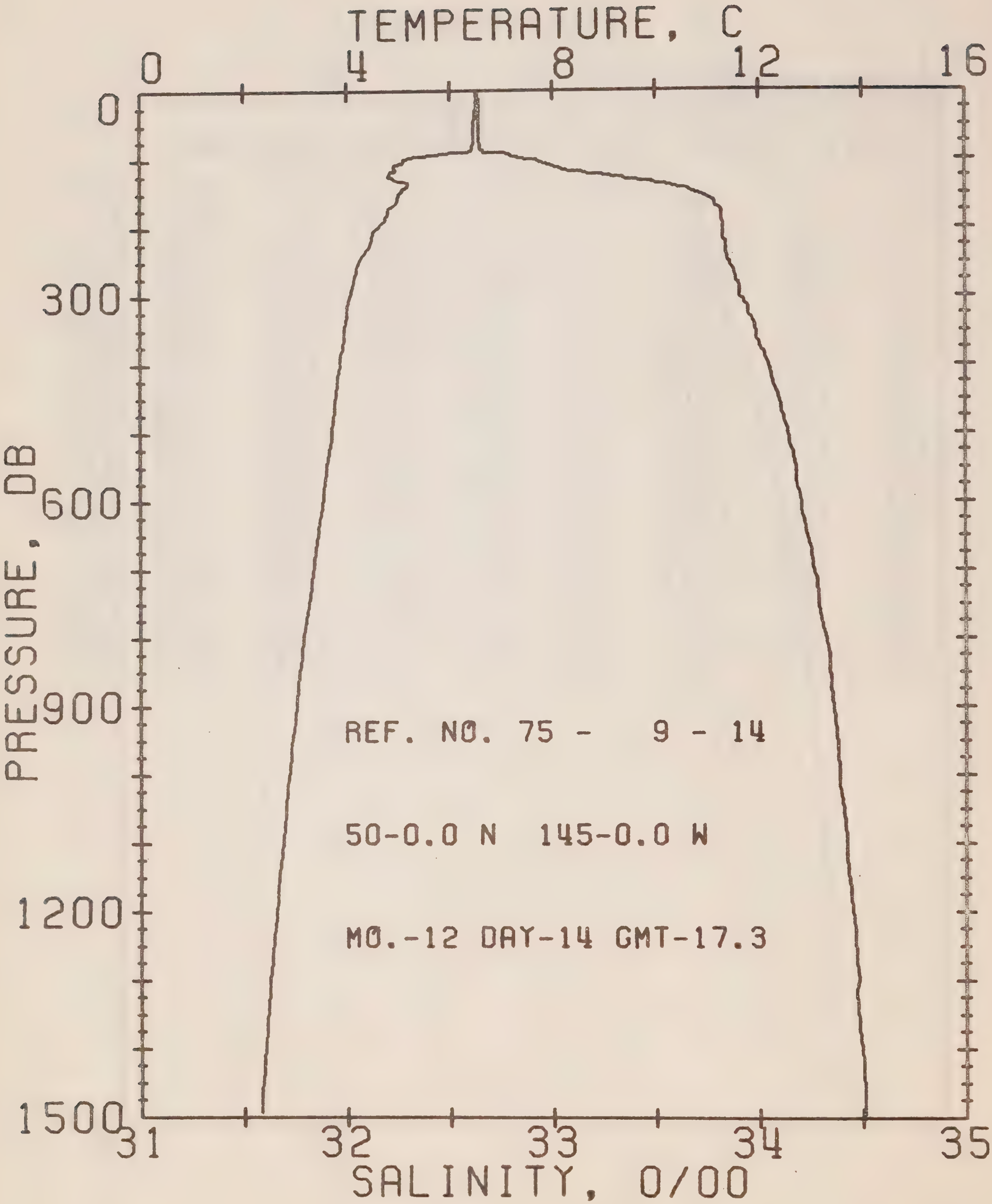
OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 12 DATE 12/12/75
POSITION 50- 0.0N, 145- 0.0W GMT 17.4
RESULTS OF STP CAST 263 POINTS TAKEN FROM ANALOG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | PCT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.17 | 32.65 | 0 | 25.70 | 229.9 | 0.0 | 0.0 | 1473. |
| 10 | 6.17 | 32.65 | 10 | 25.70 | 230.3 | 0.23 | 0.01 | 1473. |
| 20 | 6.17 | 32.65 | 20 | 25.70 | 230.4 | 0.46 | 0.05 | 1473. |
| 30 | 6.17 | 32.65 | 30 | 25.70 | 230.5 | 0.69 | 0.11 | 1473. |
| 50 | 6.14 | 32.65 | 50 | 25.71 | 230.5 | 1.15 | 0.29 | 1473. |
| 75 | 6.11 | 32.67 | 75 | 25.72 | 228.8 | 1.73 | 0.66 | 1474. |
| 100 | 4.95 | 32.91 | 99 | 26.05 | 197.9 | 2.26 | 1.14 | 1470. |
| 125 | 4.81 | 33.35 | 124 | 26.41 | 163.7 | 2.73 | 1.67 | 1470. |
| 150 | 4.85 | 33.70 | 149 | 26.69 | 138.1 | 3.10 | 2.19 | 1471. |
| 175 | 4.63 | 33.82 | 174 | 26.81 | 127.0 | 3.43 | 2.73 | 1471. |
| 200 | 4.38 | 33.84 | 199 | 26.85 | 123.1 | 3.74 | 3.33 | 1470. |
| 225 | 4.27 | 33.87 | 223 | 26.89 | 119.8 | 4.04 | 3.99 | 1470. |
| 250 | 4.16 | 33.90 | 248 | 26.92 | 116.7 | 4.34 | 4.70 | 1470. |
| 300 | 4.05 | 33.95 | 298 | 26.97 | 112.2 | 4.91 | 6.31 | 1471. |
| 400 | 3.86 | 34.06 | 397 | 27.08 | 102.6 | 5.98 | 10.11 | 1472. |
| 500 | 3.71 | 34.15 | 496 | 27.16 | 95.5 | 6.98 | 14.66 | 1473. |
| 600 | 3.51 | 34.21 | 595 | 27.23 | 89.7 | 7.90 | 19.86 | 1474. |
| 800 | 3.14 | 34.32 | 793 | 27.36 | 78.5 | 9.58 | 31.79 | 1475. |
| 1000 | 2.85 | 34.39 | 990 | 27.43 | 72.0 | 11.08 | 45.50 | 1478. |
| 1200 | 2.61 | 34.45 | 1188 | 27.51 | 65.5 | 12.45 | 60.85 | 1480. |


TEMPERATURE, C
0
4
8
12
16
0
300
600
900
1200
1500
PRESSURE, DB
REF. NO. 75 - 9 - 13
50-0.0 N 145-0.0 W
MO.-12 DAY-13 GMT-17.4
31
32
33
34
35
SALINITY, 0/00

OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 13 DATE 13/12/75
POSITION 50- 0.0N, 145- 0.0W GMT 17.4
RESULTS OF STP CAST 262 POINTS TAKEN FROM ANALOG TRACE

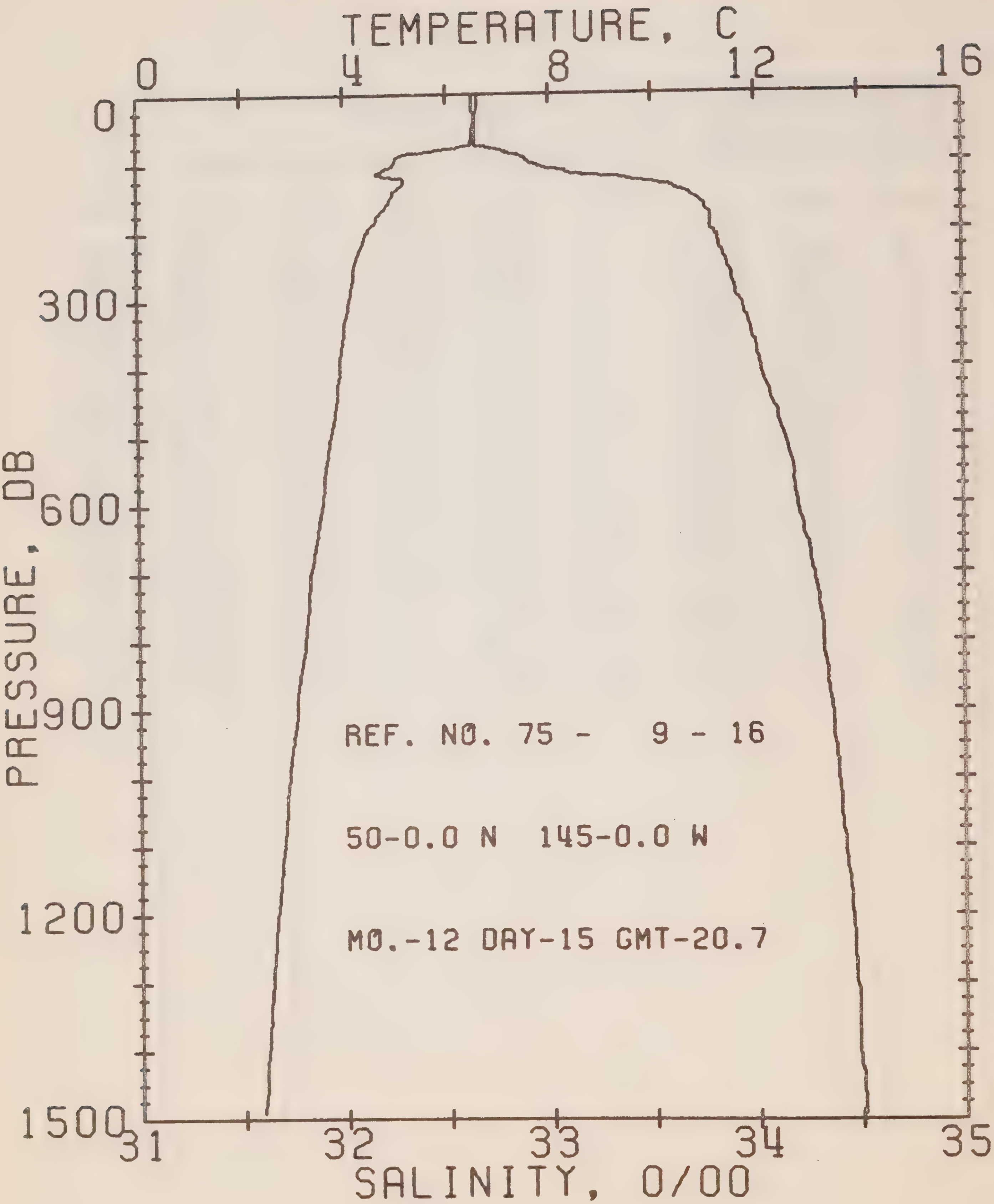
| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | FCT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.47 | 32.64 | 0 | 25.66 | 234.3 | 0.0 | 0.0 | 1474. |
| 10 | 6.47 | 32.64 | 10 | 25.66 | 234.6 | 0.23 | 0.01 | 1474. |
| 20 | 6.47 | 32.64 | 20 | 25.66 | 234.7 | 0.47 | 0.05 | 1474. |
| 30 | 6.47 | 32.64 | 30 | 25.66 | 234.9 | 0.70 | 0.11 | 1474. |
| 50 | 6.38 | 32.64 | 50 | 25.67 | 234.1 | 1.17 | 0.30 | 1474. |
| 75 | 6.31 | 32.65 | 75 | 25.68 | 232.8 | 1.76 | 0.67 | 1474. |
| 100 | 4.92 | 32.86 | 99 | 26.01 | 201.3 | 2.30 | 1.16 | 1469. |
| 125 | 4.68 | 33.17 | 124 | 26.29 | 175.7 | 2.78 | 1.70 | 1469. |
| 150 | 4.95 | 33.60 | 149 | 26.60 | 146.7 | 3.17 | 2.25 | 1471. |
| 175 | 4.88 | 33.80 | 174 | 26.76 | 131.2 | 3.52 | 2.82 | 1472. |
| 200 | 4.62 | 33.83 | 199 | 26.82 | 126.3 | 3.84 | 3.43 | 1471. |
| 225 | 4.41 | 33.84 | 223 | 26.85 | 123.6 | 4.15 | 4.11 | 1471. |
| 250 | 4.29 | 33.86 | 248 | 26.87 | 121.0 | 4.45 | 4.85 | 1471. |
| 300 | 4.04 | 33.93 | 298 | 26.96 | 113.7 | 5.04 | 6.49 | 1470. |
| 400 | 3.85 | 34.05 | 397 | 27.07 | 103.1 | 6.12 | 10.34 | 1471. |
| 500 | 3.68 | 34.14 | 496 | 27.16 | 95.5 | 7.12 | 14.89 | 1473. |
| 600 | 3.47 | 34.21 | 595 | 27.24 | 88.9 | 8.04 | 20.03 | 1473. |
| 800 | 3.13 | 34.33 | 793 | 27.36 | 78.3 | 9.71 | 31.94 | 1475. |
| 1000 | 2.83 | 34.39 | 990 | 27.44 | 71.2 | 11.20 | 45.55 | 1477. |
| 1200 | 2.78 | 34.45 | 1188 | 27.51 | 65.5 | 12.56 | 60.80 | 1480. |



TEMPERATURE, C
0
4
8
12
16
0
300
600
900
1200
1500
PRESSURE, DB
REF. NO. 75 - 9 - 14
50-0.0 N 145-0.0 W
MO.-12 DAY-14 GMT-17.3
31
32
33
34
35
SALINITY, 0/00

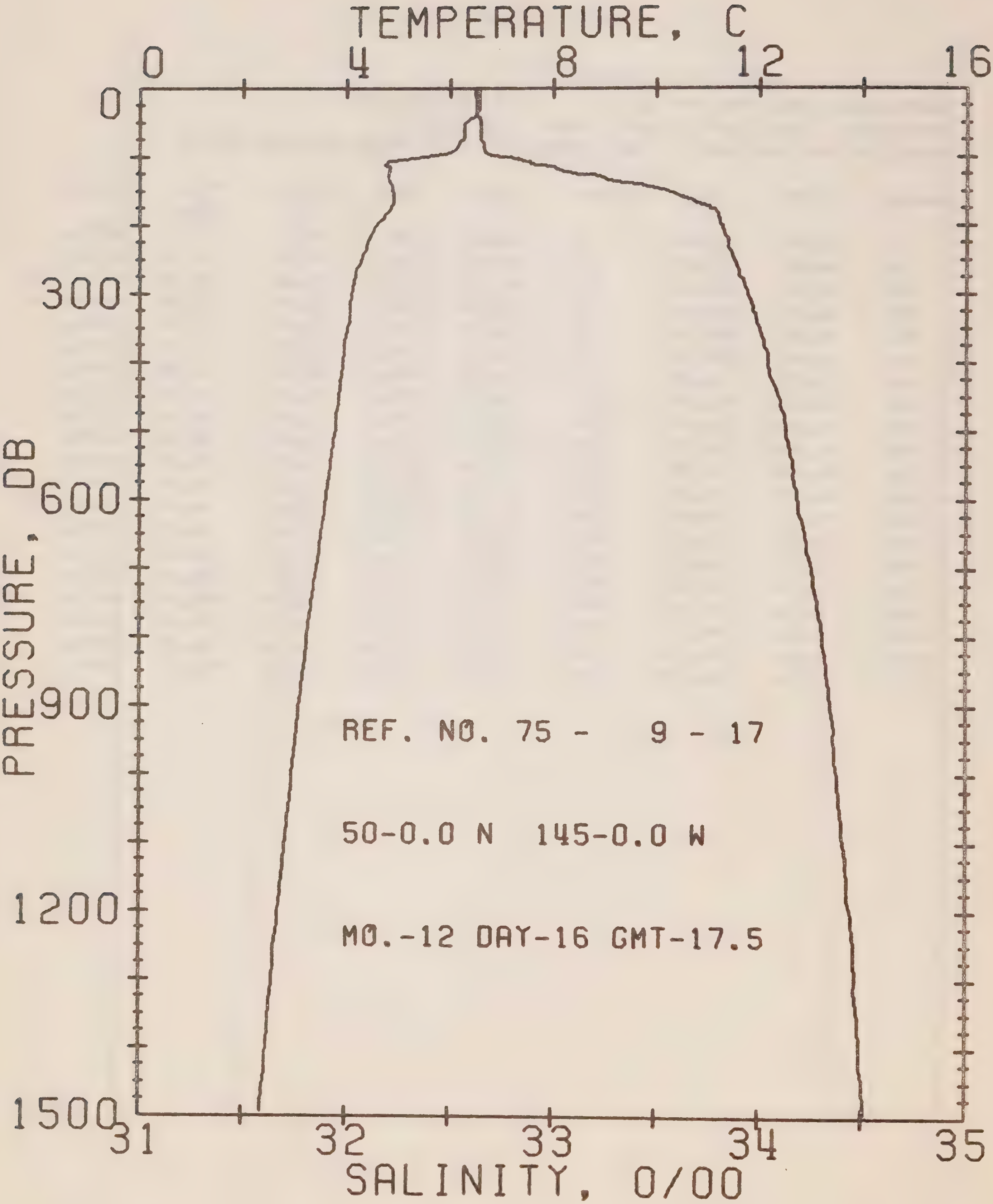
OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 14 DATE 14/12/75
POSITION 50- 0.0N, 145- 0.0W GMT 17.3
RESULTS OF STP CAST 245 POINTS TAKEN FROM ANALOG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | PCT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.53 | 32.63 | 0 | 25.64 | 235.8 | 0.0 | 0.0 | 1474. |
| 10 | 6.53 | 32.63 | 10 | 25.64 | 236.2 | 0.24 | 0.01 | 1474. |
| 20 | 6.51 | 32.64 | 20 | 25.65 | 235.2 | 0.47 | 0.05 | 1474. |
| 30 | 6.49 | 32.64 | 30 | 25.65 | 235.1 | 0.71 | 0.11 | 1474. |
| 50 | 6.46 | 32.64 | 50 | 25.66 | 235.0 | 1.18 | 0.30 | 1475. |
| 75 | 6.45 | 32.64 | 75 | 25.66 | 235.2 | 1.76 | 0.67 | 1475. |
| 100 | 5.12 | 32.89 | 99 | 26.02 | 201.3 | 2.33 | 1.18 | 1470. |
| 125 | 4.81 | 33.30 | 124 | 26.37 | 167.4 | 2.80 | 1.71 | 1470. |
| 150 | 5.02 | 33.70 | 149 | 26.67 | 140.0 | 3.18 | 2.25 | 1472. |
| 175 | 4.81 | 33.81 | 174 | 26.78 | 129.3 | 3.52 | 2.80 | 1472. |
| 200 | 4.60 | 33.83 | 199 | 26.82 | 126.2 | 3.84 | 3.42 | 1471. |
| 225 | 4.44 | 33.84 | 223 | 26.84 | 123.9 | 4.15 | 4.09 | 1471. |
| 250 | 4.23 | 33.85 | 248 | 26.88 | 120.8 | 4.46 | 4.83 | 1470. |
| 300 | 4.05 | 33.91 | 298 | 26.94 | 115.3 | 5.05 | 6.48 | 1471. |
| 400 | 3.86 | 34.05 | 397 | 27.07 | 104.0 | 6.14 | 10.37 | 1472. |
| 500 | 3.72 | 34.14 | 496 | 27.16 | 96.2 | 7.14 | 14.95 | 1473. |
| 600 | 3.52 | 34.20 | 595 | 27.23 | 90.1 | 8.07 | 20.16 | 1474. |
| 800 | 3.15 | 34.32 | 793 | 27.36 | 78.7 | 9.76 | 32.18 | 1475. |
| 1000 | 2.87 | 34.39 | 990 | 27.43 | 72.0 | 11.26 | 45.92 | 1478. |
| 1200 | 2.61 | 34.45 | 1188 | 27.50 | 66.0 | 12.64 | 61.36 | 1480. |


TEMPERATURE, C
0
4
8
12
16
0
300
600
900
1200
1500
PRESSURE, DB
REF. NO. 75 - 9 - 16
50-0.0 N 145-0.0 W
MO.-12 DAY-15 GMT-20.7
31
32
33
34
35
SALINITY, 0/00

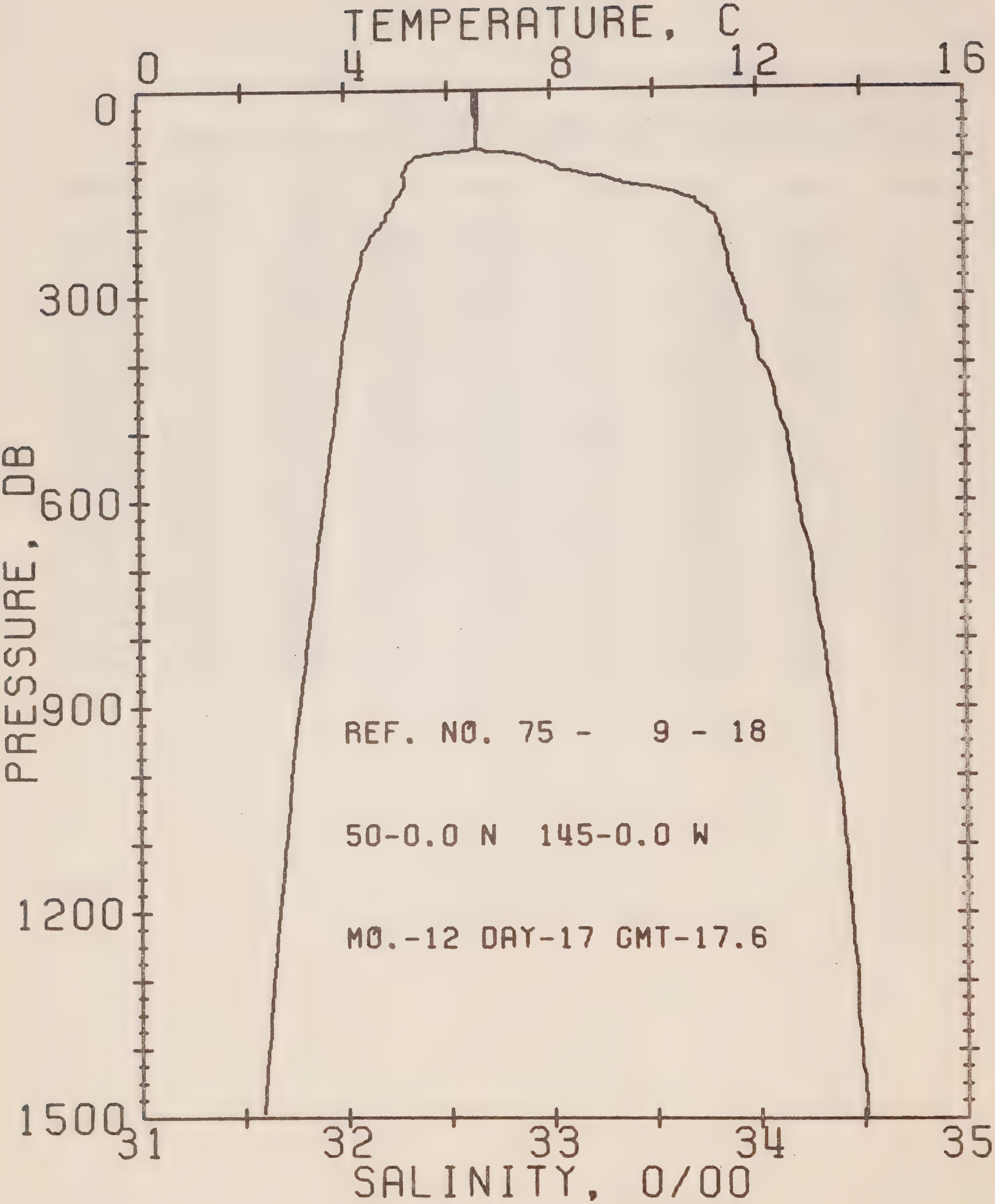
OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 16 DATE 15/12/75
POSITION 50- 0.0N, 145- 0.0W GMT 20.7
RESULTS OF STP CAST 241 POINTS TAKEN FROM ANALOG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | FCT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.62 | 32.63 | 0 | 25.63 | 236.9 | 0.0 | 0.0 | 1474. |
| 10 | 6.61 | 32.63 | 10 | 25.63 | 237.1 | 0.24 | 0.01 | 1475. |
| 20 | 6.61 | 32.63 | 20 | 25.63 | 237.3 | 0.47 | 0.05 | 1475. |
| 30 | 6.57 | 32.64 | 30 | 25.64 | 236.3 | 0.71 | 0.11 | 1475. |
| 50 | 6.52 | 32.64 | 50 | 25.65 | 235.8 | 1.18 | 0.30 | 1475. |
| 75 | 6.45 | 32.64 | 75 | 25.66 | 235.2 | 1.77 | 0.68 | 1475. |
| 100 | 5.00 | 32.90 | 99 | 26.04 | 199.2 | 2.30 | 1.15 | 1470. |
| 125 | 5.18 | 33.39 | 124 | 26.40 | 164.7 | 2.77 | 1.68 | 1472. |
| 150 | 4.94 | 33.69 | 149 | 26.67 | 139.9 | 3.14 | 2.20 | 1471. |
| 175 | 4.69 | 33.78 | 174 | 26.77 | 130.6 | 3.48 | 2.76 | 1471. |
| 200 | 4.48 | 33.79 | 199 | 26.80 | 127.9 | 3.80 | 3.37 | 1471. |
| 225 | 4.32 | 33.83 | 223 | 26.85 | 123.4 | 4.11 | 4.05 | 1470. |
| 250 | 4.21 | 33.86 | 248 | 26.89 | 119.8 | 4.42 | 4.79 | 1470. |
| 300 | 4.10 | 33.92 | 298 | 26.94 | 115.0 | 5.00 | 6.43 | 1471. |
| 400 | 3.92 | 34.03 | 397 | 27.04 | 106.0 | 6.10 | 10.34 | 1472. |
| 500 | 3.74 | 34.13 | 496 | 27.15 | 97.0 | 7.12 | 15.00 | 1473. |
| 600 | 3.56 | 34.20 | 595 | 27.22 | 90.8 | 8.05 | 20.22 | 1474. |
| 800 | 3.21 | 34.32 | 793 | 27.35 | 79.5 | 9.73 | 32.19 | 1476. |
| 1000 | 2.88 | 34.39 | 990 | 27.44 | 72.0 | 11.24 | 46.01 | 1478. |
| 1200 | 2.64 | 34.45 | 1188 | 27.51 | 66.0 | 12.62 | 61.47 | 1480. |


TEMPERATURE, C
0
4
8
12
16
0
300
600
900
1200
1500
PRESSURE, DB
REF. NO. 75 - 9 - 17
50-0.0 N 145-0.0 W
MO.-12 DAY-16 GMT-17.5
31
32
33
34
35
SALINITY, 0/00

OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 17 DATE 16/12/75
POSITION 50- 0.0N, 145- 0.0W GMT 17.5
RESULTS OF STP CAST 241 POINTS TAKEN FROM ANALOG TRACE

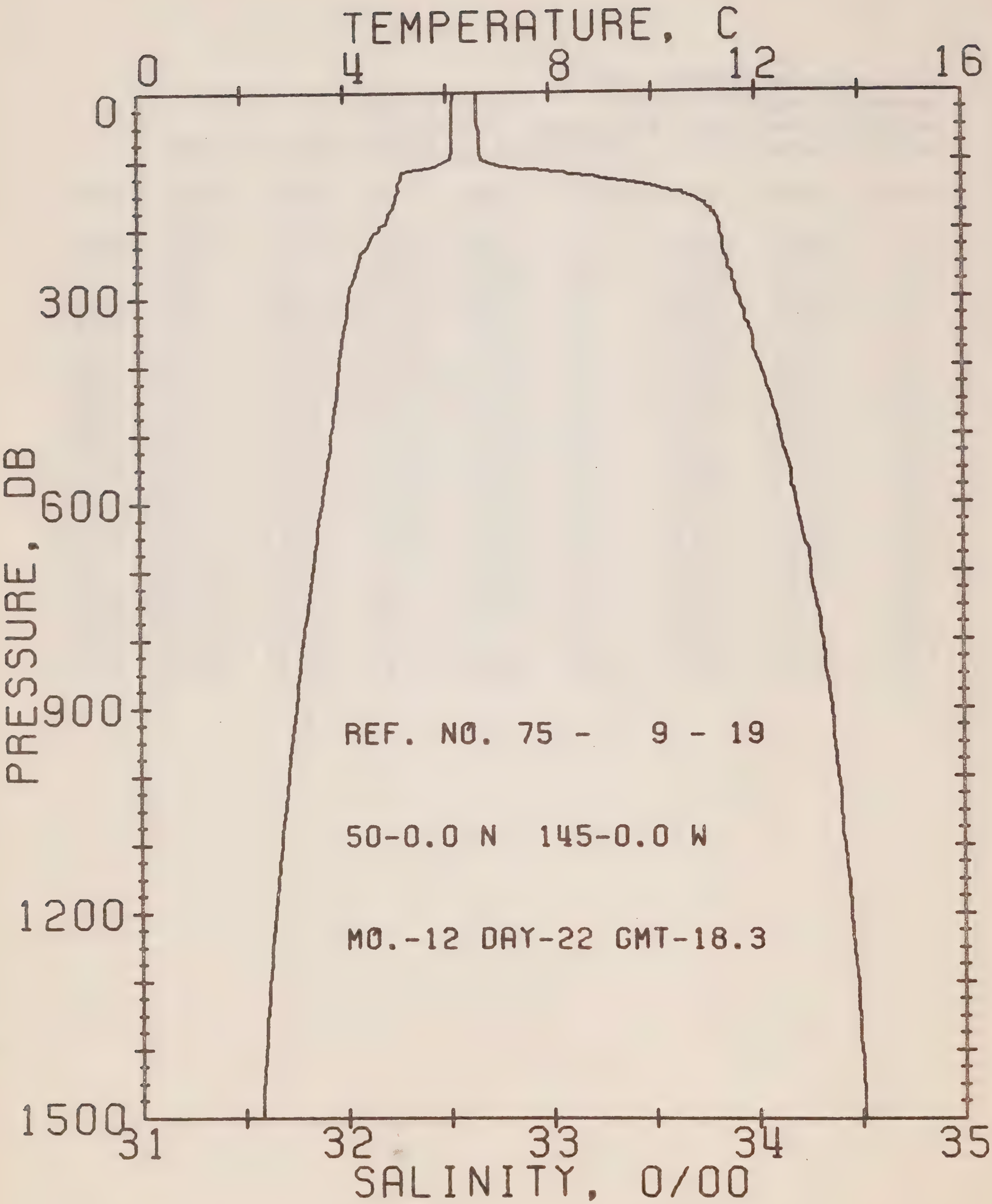
| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | PCT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.56 | 32.62 | 0 | 25.63 | 236.9 | 0.0 | 0.0 | 1474. |
| 10 | 6.56 | 32.62 | 10 | 25.63 | 237.3 | 0.24 | 0.01 | 1474. |
| 20 | 6.55 | 32.63 | 20 | 25.64 | 236.6 | 0.47 | 0.05 | 1474. |
| 30 | 6.55 | 32.63 | 30 | 25.64 | 236.7 | 0.71 | 0.11 | 1475. |
| 50 | 6.30 | 32.65 | 50 | 25.69 | 232.3 | 1.18 | 0.30 | 1474. |
| 75 | 6.23 | 32.65 | 75 | 25.69 | 231.7 | 1.76 | 0.67 | 1474. |
| 100 | 5.59 | 32.73 | 99 | 25.84 | 218.2 | 2.33 | 1.18 | 1472. |
| 125 | 4.79 | 33.13 | 124 | 26.24 | 179.9 | 2.82 | 1.74 | 1470. |
| 150 | 4.89 | 33.55 | 149 | 26.56 | 149.8 | 3.23 | 2.31 | 1471. |
| 175 | 4.85 | 33.76 | 174 | 26.73 | 133.9 | 3.59 | 2.90 | 1472. |
| 200 | 4.57 | 33.82 | 199 | 26.81 | 126.8 | 3.91 | 3.52 | 1471. |
| 225 | 4.40 | 33.85 | 223 | 26.86 | 122.8 | 4.22 | 4.19 | 1471. |
| 250 | 4.27 | 33.87 | 248 | 26.89 | 119.8 | 4.53 | 4.93 | 1471. |
| 300 | 4.09 | 33.94 | 298 | 26.96 | 113.3 | 5.11 | 6.56 | 1471. |
| 400 | 3.93 | 34.04 | 397 | 27.05 | 105.1 | 6.19 | 10.43 | 1472. |
| 500 | 3.77 | 34.13 | 496 | 27.14 | 97.5 | 7.21 | 15.06 | 1473. |
| 600 | 3.59 | 34.18 | 595 | 27.20 | 92.3 | 8.15 | 20.37 | 1474. |
| 800 | 3.23 | 34.31 | 793 | 27.34 | 80.7 | 9.88 | 32.66 | 1476. |
| 1000 | 2.95 | 34.38 | 990 | 27.42 | 73.7 | 11.42 | 46.74 | 1478. |
| 1200 | 2.68 | 34.44 | 1188 | 27.50 | 67.1 | 12.83 | 62.56 | 1480. |



TEMPERATURE, C
0
4
8
12
16
0
300
600
900
1200
1500
PRESSURE, DB
REF. NO. 75 - 9 - 18
50-0.0 N 145-0.0 W
MO.-12 DAY-17 GMT-17.6
31
32
33
34
35
SALINITY, 0/00

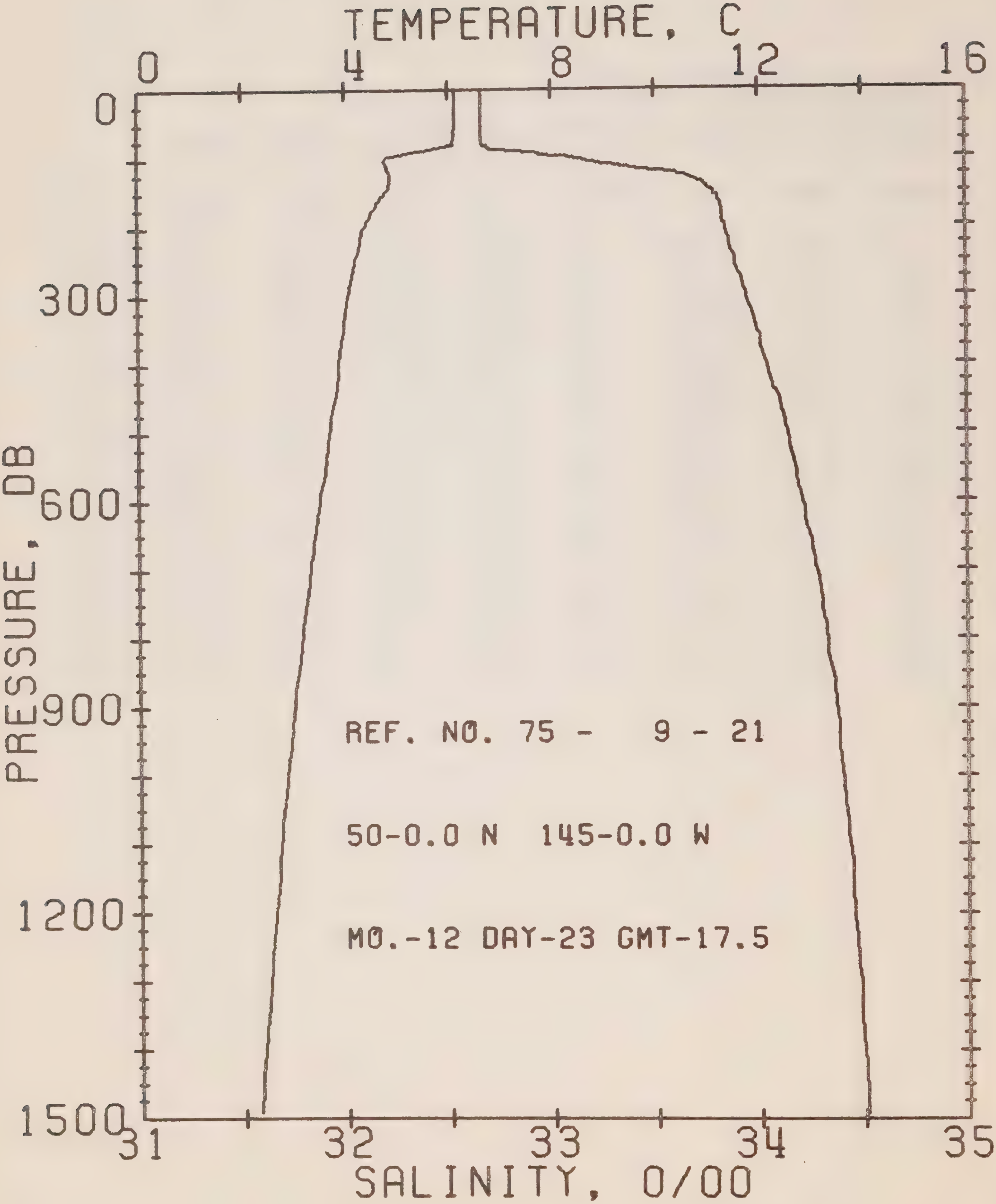
OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 18 DATE 17/12/75
POSITION 50- 0.0N, 145- 0.0W GMT 17.6
RESULTS OF STP CAST 231 POINTS TAKEN FROM ANALOG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | FCT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.59 | 32.63 | 0 | 25.63 | 236.6 | 0.0 | 0.0 | 1474. |
| 10 | 6.58 | 32.63 | 10 | 25.63 | 236.7 | 0.24 | 0.01 | 1474. |
| 20 | 6.58 | 32.63 | 20 | 25.63 | 236.8 | 0.47 | 0.05 | 1475. |
| 30 | 6.58 | 32.63 | 30 | 25.63 | 237.0 | 0.71 | 0.11 | 1475. |
| 50 | 6.58 | 32.64 | 50 | 25.64 | 236.5 | 1.18 | 0.30 | 1475. |
| 75 | 6.57 | 32.64 | 75 | 25.64 | 236.7 | 1.78 | 0.68 | 1475. |
| 100 | 5.34 | 32.91 | 99 | 26.01 | 202.3 | 2.34 | 1.18 | 1471. |
| 125 | 5.14 | 33.20 | 124 | 26.26 | 178.5 | 2.82 | 1.73 | 1471. |
| 150 | 5.09 | 33.57 | 149 | 26.56 | 150.2 | 3.23 | 2.31 | 1472. |
| 175 | 4.89 | 33.76 | 174 | 26.73 | 134.3 | 3.58 | 2.89 | 1472. |
| 200 | 4.68 | 33.81 | 199 | 26.80 | 128.2 | 3.91 | 3.51 | 1471. |
| 225 | 4.44 | 33.84 | 223 | 26.84 | 123.9 | 4.23 | 4.19 | 1471. |
| 250 | 4.31 | 33.86 | 248 | 26.87 | 121.2 | 4.53 | 4.93 | 1471. |
| 300 | 4.10 | 33.91 | 298 | 26.93 | 115.8 | 5.13 | 6.60 | 1471. |
| 400 | 3.91 | 34.02 | 397 | 27.04 | 106.4 | 6.23 | 10.54 | 1472. |
| 500 | 3.76 | 34.13 | 496 | 27.15 | 97.2 | 7.24 | 15.18 | 1473. |
| 600 | 3.56 | 34.19 | 595 | 27.21 | 91.7 | 8.19 | 20.46 | 1474. |
| 800 | 3.23 | 34.31 | 793 | 27.34 | 80.5 | 9.91 | 32.68 | 1476. |
| 1000 | 2.92 | 34.38 | 990 | 27.42 | 73.3 | 11.44 | 46.69 | 1478. |
| 1200 | 2.66 | 34.44 | 1188 | 27.49 | 67.2 | 12.84 | 62.38 | 1480. |


TEMPERATURE, C
0
4
8
12
16
PRESSURE, DB
0
300
600
900
1200
1500
31
32
33
34
35
SALINITY, 0/00
REF. NO. 75 - 9 - 19
50-0.0 N 145-0.0 W
MO.-12 DAY-22 GMT-18.3

OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 19 DATE 22/12/75
POSITION 50- 0.0N, 145- 0.0W GMT 18.3
RESULTS OF STP CAST 225 POINTS TAKEN FROM ANALOG TRACE

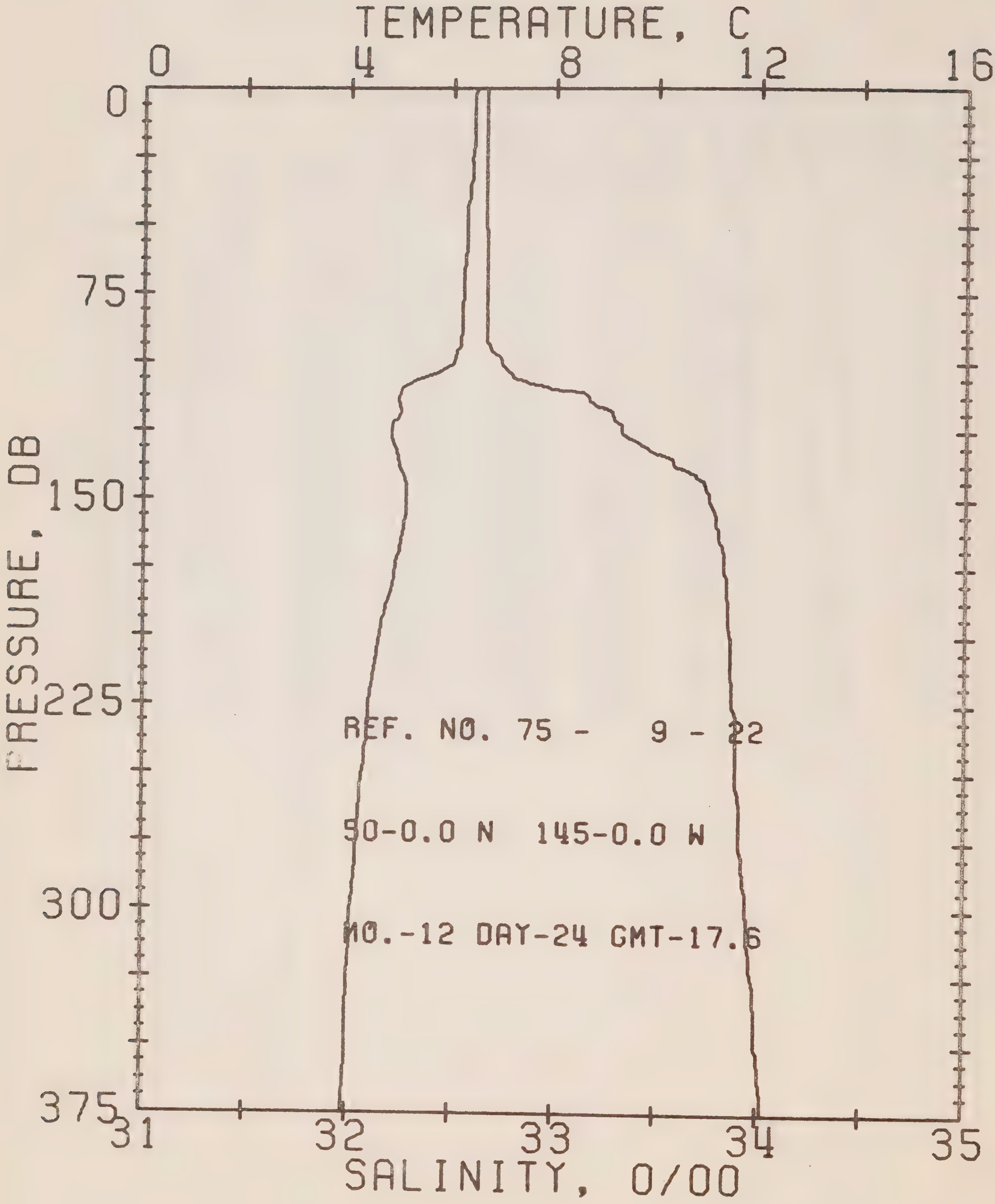
| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | POT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.13 | 32.65 | 0 | 25.71 | 229.5 | 0.0 | 0.0 | 1472. |
| 10 | 6.12 | 32.65 | 10 | 25.71 | 229.6 | 0.23 | 0.01 | 1473. |
| 20 | 6.11 | 32.65 | 20 | 25.71 | 229.7 | 0.46 | 0.05 | 1473. |
| 30 | 6.11 | 32.65 | 30 | 25.71 | 229.8 | 0.69 | 0.11 | 1473. |
| 50 | 6.11 | 32.65 | 50 | 25.71 | 229.8 | 1.15 | 0.29 | 1473. |
| 75 | 6.11 | 32.66 | 75 | 25.72 | 229.6 | 1.72 | 0.66 | 1474. |
| 100 | 6.02 | 32.68 | 99 | 25.74 | 227.4 | 2.30 | 1.17 | 1474. |
| 125 | 5.11 | 33.25 | 124 | 26.30 | 174.4 | 2.80 | 1.75 | 1471. |
| 150 | 5.02 | 33.66 | 149 | 26.64 | 143.0 | 3.20 | 2.30 | 1472. |
| 175 | 4.89 | 33.79 | 174 | 26.75 | 132.2 | 3.54 | 2.86 | 1472. |
| 200 | 4.68 | 33.83 | 199 | 26.81 | 127.0 | 3.86 | 3.48 | 1471. |
| 225 | 4.45 | 33.84 | 223 | 26.84 | 124.1 | 4.17 | 4.16 | 1471. |
| 250 | 4.28 | 33.87 | 248 | 26.88 | 120.2 | 4.48 | 4.90 | 1471. |
| 300 | 4.07 | 33.92 | 298 | 26.94 | 114.9 | 5.07 | 6.54 | 1471. |
| 400 | 3.89 | 34.02 | 397 | 27.04 | 106.2 | 6.17 | 10.47 | 1472. |
| 500 | 3.73 | 34.12 | 496 | 27.14 | 98.0 | 7.19 | 15.14 | 1473. |
| 600 | 3.53 | 34.19 | 595 | 27.21 | 91.2 | 8.13 | 20.42 | 1474. |
| 800 | 3.15 | 34.32 | 793 | 27.35 | 79.1 | 9.83 | 32.49 | 1475. |
| 1000 | 2.85 | 34.39 | 990 | 27.44 | 71.7 | 11.33 | 46.27 | 1478. |
| 1200 | 2.60 | 34.45 | 1188 | 27.51 | 65.8 | 12.71 | 61.64 | 1480. |



TEMPERATURE, C
0
4
8
12
16
0
300
600
900
1200
1500
PRESSURE, DB
REF. NO. 75 - 9 - 21
50-0.0 N 145-0.0 W
MO.-12 DAY-23 GMT-17.5
31
32
33
34
35
SALINITY, 0/00

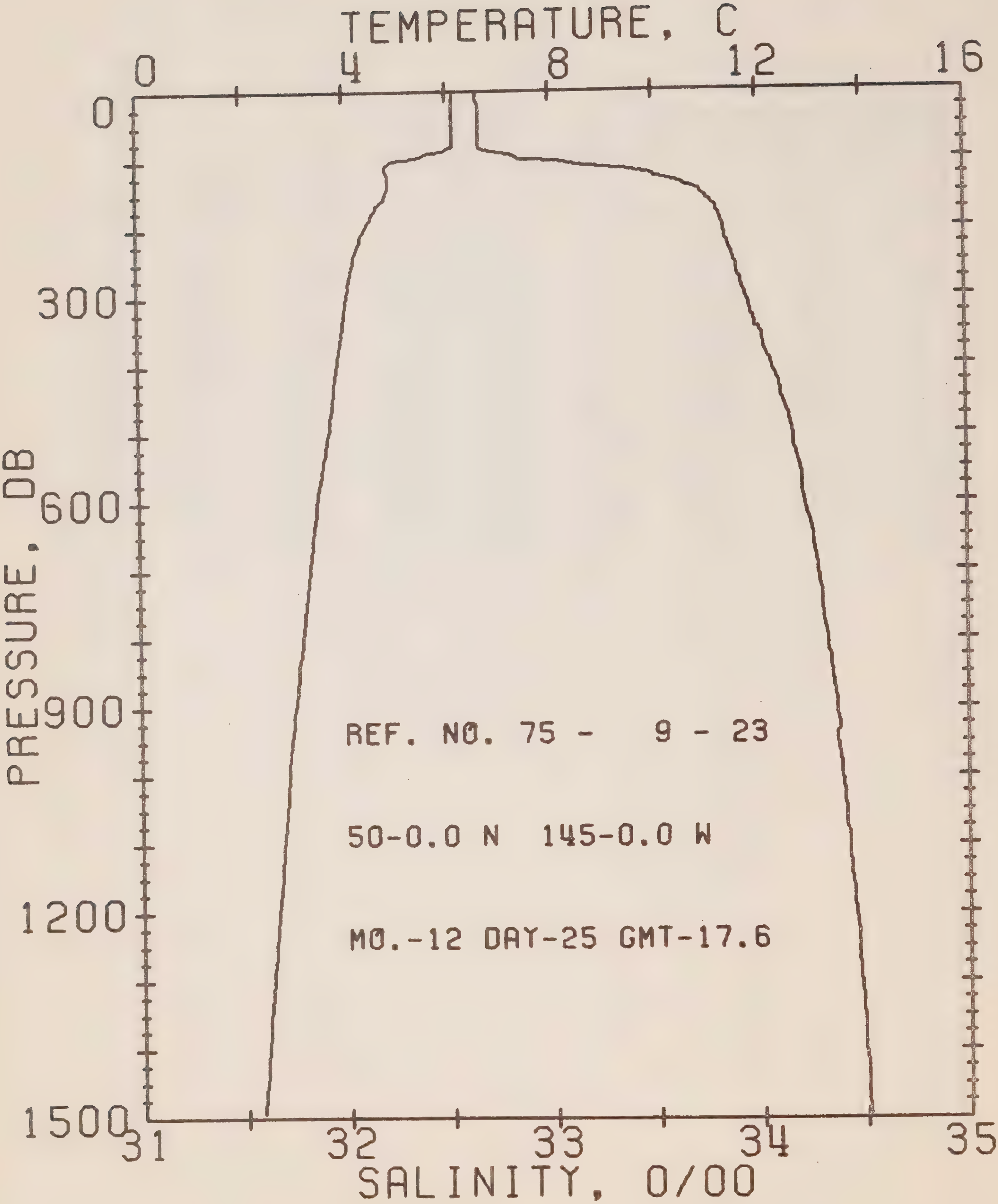
OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 21 DATE 23/12/75
POSITION 50- 0.0N, 145- 0.0W GMT 17.5
RESULTS OF STP CAST 220 POINTS TAKEN FROM ANALOG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | POT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.14 | 32.66 | 0 | 25.71 | 228.9 | 0.0 | 0.0 | 1473. |
| 10 | 6.14 | 32.66 | 10 | 25.71 | 229.2 | 0.23 | 0.01 | 1473. |
| 20 | 6.14 | 32.66 | 20 | 25.71 | 229.3 | 0.46 | 0.05 | 1473. |
| 30 | 6.13 | 32.66 | 30 | 25.71 | 229.3 | 0.69 | 0.11 | 1473. |
| 50 | 6.12 | 32.66 | 50 | 25.72 | 229.4 | 1.15 | 0.29 | 1473. |
| 75 | 6.09 | 32.66 | 75 | 25.72 | 229.4 | 1.72 | 0.66 | 1474. |
| 100 | 4.79 | 33.09 | 99 | 26.21 | 182.7 | 2.26 | 1.13 | 1469. |
| 125 | 4.88 | 33.61 | 124 | 26.62 | 144.6 | 2.67 | 1.60 | 1471. |
| 150 | 4.77 | 33.79 | 149 | 26.77 | 130.5 | 3.01 | 2.08 | 1471. |
| 175 | 4.56 | 33.82 | 174 | 26.82 | 126.0 | 3.33 | 2.61 | 1470. |
| 200 | 4.37 | 33.84 | 199 | 26.85 | 123.0 | 3.64 | 3.21 | 1470. |
| 225 | 4.29 | 33.86 | 223 | 26.87 | 120.8 | 3.95 | 3.87 | 1470. |
| 250 | 4.19 | 33.89 | 248 | 26.91 | 117.8 | 4.25 | 4.59 | 1470. |
| 300 | 4.04 | 33.94 | 298 | 26.96 | 113.0 | 4.82 | 6.21 | 1471. |
| 400 | 3.88 | 34.03 | 397 | 27.06 | 105.0 | 5.91 | 10.09 | 1472. |
| 500 | 3.69 | 34.14 | 496 | 27.16 | 96.1 | 6.92 | 14.68 | 1473. |
| 600 | 3.49 | 34.21 | 595 | 27.23 | 89.4 | 7.85 | 19.89 | 1473. |
| 800 | 3.13 | 34.32 | 793 | 27.36 | 78.3 | 9.52 | 31.77 | 1475. |
| 1000 | 2.83 | 34.40 | 990 | 27.44 | 71.0 | 11.00 | 45.38 | 1477. |
| 1200 | 2.59 | 34.45 | 1188 | 27.51 | 65.6 | 12.37 | 60.63 | 1480. |


TEMPERATURE, C
0
4
8
12
16
0
75
150
225
300
375
PRESSURE, DB
REF. NO. 75 - 9 - 22
50-0.0 N 145-0.0 W
MO.-12 DAY-24 GMT-17.6
31
32
33
34
35
SALINITY, 0/00

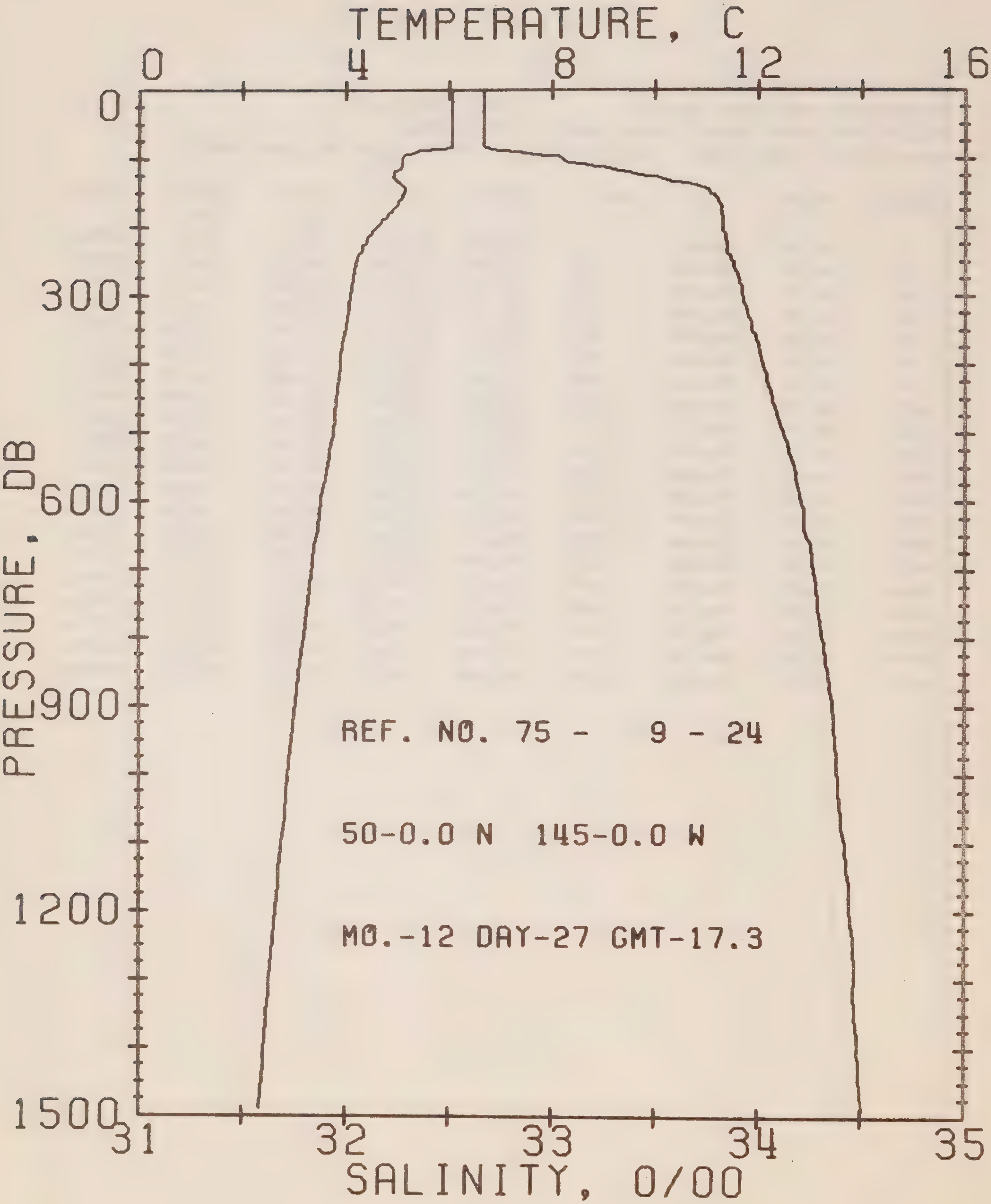
OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 22 DATE 24/12/75
POSITION 50- 0.0N, 145- 0.0W GMT 17.6
RESULTS OF STP CAST 177 POINTS TAKEN FROM ANALCG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | POT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.45 | 32.66 | 0 | 25.67 | 232.6 | 0.0 | 0.0 | 1474. |
| 10 | 6.39 | 32.66 | 10 | 25.68 | 232.2 | 0.23 | 0.01 | 1474. |
| 20 | 6.39 | 32.66 | 20 | 25.68 | 232.3 | 0.46 | 0.05 | 1474. |
| 30 | 6.37 | 32.66 | 30 | 25.68 | 232.1 | 0.70 | 0.11 | 1474. |
| 50 | 6.27 | 32.66 | 50 | 25.70 | 231.2 | 1.16 | 0.30 | 1474. |
| 75 | 6.21 | 32.67 | 75 | 25.71 | 230.0 | 1.74 | 0.66 | 1474. |
| 100 | 6.02 | 32.74 | 99 | 25.79 | 222.8 | 2.31 | 1.17 | 1474. |
| 125 | 4.84 | 33.33 | 124 | 26.40 | 165.5 | 2.78 | 1.71 | 1470. |
| 150 | 5.11 | 33.75 | 149 | 26.70 | 137.3 | 3.15 | 2.23 | 1472. |
| 175 | 4.91 | 33.83 | 174 | 26.78 | 129.3 | 3.48 | 2.78 | 1472. |
| 200 | 4.61 | 33.86 | 199 | 26.84 | 124.3 | 3.80 | 3.38 | 1471. |
| 225 | 4.40 | 33.87 | 223 | 26.87 | 121.3 | 4.11 | 4.05 | 1471. |
| 250 | 4.28 | 33.89 | 248 | 26.90 | 118.7 | 4.41 | 4.77 | 1471. |
| 300 | 4.07 | 33.94 | 298 | 26.96 | 113.1 | 4.99 | 6.40 | 1471. |


TEMPERATURE, C
0
4
8
12
16
PRESSURE, DB
0
300
600
900
1200
1500
REF. NO. 75 - 9 - 23
50-0.0 N 145-0.0 W
MO.-12 DAY-25 GMT-17.6
31
32
33
34
35
SALINITY, 0/00

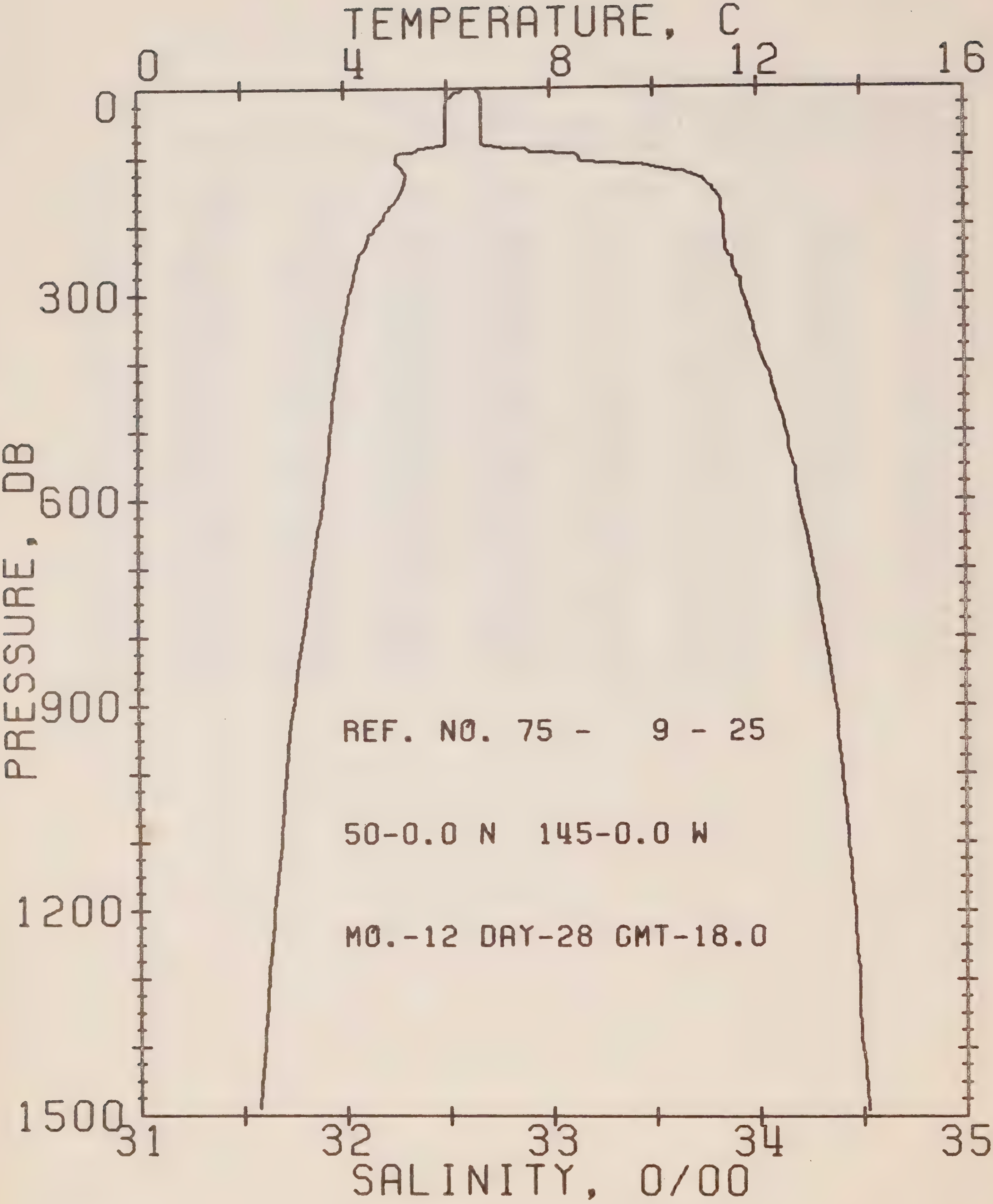
OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 23 DATE 25/12/75
POSITION 50- 0.0N, 145- 0.0W GMT 17.6
RESULTS OF STP CAST 218 POINTS TAKEN FROM ANALOG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | POT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.15 | 32.65 | 0 | 25.70 | 229.8 | 0.0 | 0.0 | 1473. |
| 10 | 6.14 | 32.65 | 10 | 25.71 | 229.9 | 0.23 | 0.01 | 1473. |
| 20 | 6.14 | 32.66 | 20 | 25.71 | 229.6 | 0.46 | 0.05 | 1473. |
| 30 | 6.14 | 32.66 | 30 | 25.71 | 229.4 | 0.69 | 0.11 | 1473. |
| 50 | 6.14 | 32.66 | 50 | 25.71 | 229.6 | 1.15 | 0.29 | 1473. |
| 75 | 6.14 | 32.66 | 75 | 25.71 | 229.9 | 1.72 | 0.66 | 1474. |
| 100 | 5.27 | 32.86 | 99 | 25.98 | 205.2 | 2.28 | 1.15 | 1471. |
| 125 | 4.88 | 33.51 | 124 | 26.53 | 152.4 | 2.70 | 1.64 | 1471. |
| 150 | 4.83 | 33.73 | 149 | 26.72 | 135.4 | 3.06 | 2.14 | 1471. |
| 175 | 4.61 | 33.81 | 174 | 26.80 | 127.5 | 3.39 | 2.68 | 1471. |
| 200 | 4.42 | 33.84 | 199 | 26.85 | 123.4 | 3.70 | 3.28 | 1470. |
| 225 | 4.28 | 33.86 | 223 | 26.88 | 120.8 | 4.01 | 3.94 | 1470. |
| 250 | 4.18 | 33.89 | 248 | 26.91 | 117.6 | 4.31 | 4.66 | 1470. |
| 300 | 4.04 | 33.94 | 298 | 26.96 | 112.8 | 4.88 | 6.28 | 1470. |
| 400 | 3.85 | 34.06 | 397 | 27.08 | 102.5 | 5.96 | 10.11 | 1472. |
| 500 | 3.68 | 34.16 | 496 | 27.18 | 94.2 | 6.94 | 14.60 | 1473. |
| 600 | 3.46 | 34.22 | 595 | 27.24 | 88.5 | 7.85 | 19.70 | 1473. |
| 800 | 3.15 | 34.33 | 793 | 27.36 | 78.2 | 9.51 | 31.50 | 1475. |
| 1000 | 2.85 | 34.39 | 990 | 27.44 | 71.8 | 11.00 | 45.17 | 1478. |
| 1200 | 2.62 | 34.45 | 1188 | 27.50 | 66.0 | 12.38 | 60.63 | 1480. |


TEMPERATURE, C
0
4
8
12
16
0
300
600
900
1200
1500
PRESSURE, DB
REF. NO. 75 - 9 - 24
50-0.0 N 145-0.0 W
MO.-12 DAY-27 GMT-17.3
31
32
33
34
35
SALINITY, 0/00

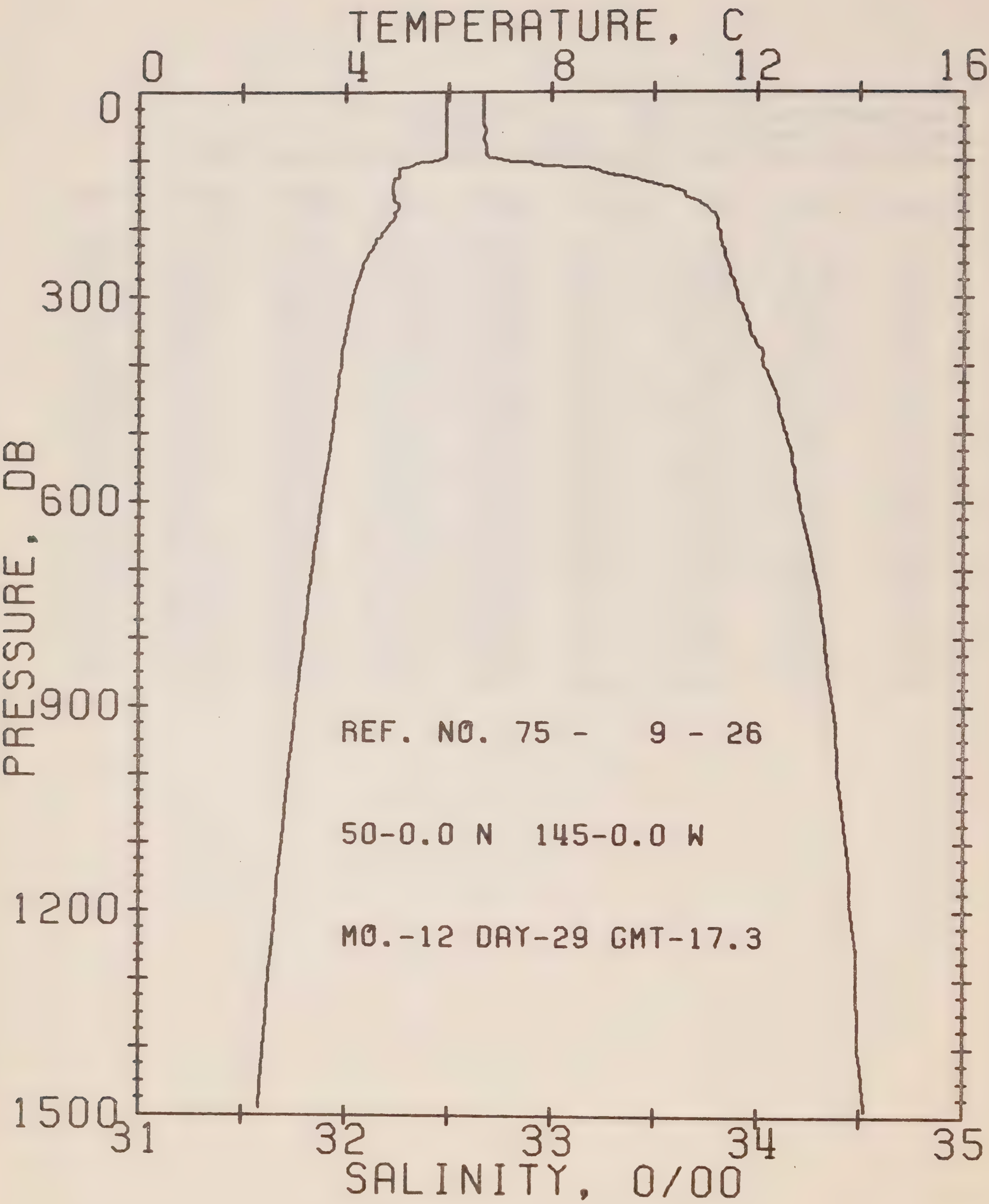
OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 24 DATE 27/12/75
POSITION 50- 0.0N, 145- 0.0W GMT 17.3
RESULTS OF STP CAST 222 POINTS TAKEN FROM ANALOG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | POT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.04 | 32.67 | 0 | 25.73 | 226.9 | 0.0 | 0.0 | 1472. |
| 10 | 6.05 | 32.67 | 10 | 25.73 | 227.4 | 0.23 | 0.01 | 1472. |
| 20 | 6.05 | 32.67 | 20 | 25.73 | 227.5 | 0.45 | 0.05 | 1473. |
| 30 | 6.05 | 32.67 | 30 | 25.73 | 227.6 | 0.68 | 0.10 | 1473. |
| 50 | 6.05 | 32.67 | 50 | 25.73 | 227.8 | 1.14 | 0.29 | 1473. |
| 75 | 6.05 | 32.67 | 75 | 25.73 | 228.1 | 1.71 | 0.65 | 1473. |
| 100 | 5.09 | 33.05 | 99 | 26.14 | 189.3 | 2.24 | 1.13 | 1470. |
| 125 | 4.91 | 33.47 | 124 | 26.50 | 155.8 | 2.68 | 1.63 | 1471. |
| 150 | 5.13 | 33.77 | 149 | 26.71 | 136.3 | 3.04 | 2.13 | 1472. |
| 175 | 4.89 | 33.82 | 174 | 26.78 | 129.8 | 3.37 | 2.68 | 1472. |
| 200 | 4.58 | 33.83 | 199 | 26.82 | 126.0 | 3.69 | 3.29 | 1471. |
| 225 | 4.36 | 33.85 | 223 | 26.86 | 122.3 | 4.01 | 3.97 | 1470. |
| 250 | 4.20 | 33.88 | 248 | 26.90 | 118.8 | 4.31 | 4.70 | 1470. |
| 300 | 4.08 | 33.92 | 298 | 26.94 | 114.8 | 4.89 | 6.33 | 1471. |
| 400 | 3.89 | 34.02 | 397 | 27.04 | 106.3 | 5.99 | 10.25 | 1472. |
| 500 | 3.76 | 34.12 | 496 | 27.13 | 98.2 | 7.01 | 14.93 | 1473. |
| 600 | 3.52 | 34.21 | 595 | 27.23 | 89.9 | 7.95 | 20.18 | 1474. |
| 800 | 3.19 | 34.31 | 793 | 27.34 | 79.9 | 9.64 | 32.23 | 1476. |
| 1000 | 2.89 | 34.38 | 990 | 27.43 | 72.7 | 11.16 | 46.08 | 1478. |
| 1200 | 2.64 | 34.44 | 1188 | 27.50 | 66.8 | 12.55 | 61.65 | 1480. |


TEMPERATURE, C
0
4
8
12
16
0
300
600
900
1200
1500
PRESSURE, DB
REF. NO. 75 - 9 - 25
50-0.0 N 145-0.0 W
MO.-12 DAY-28 GMT-18.0
31
32
33
34
35
SALINITY, 0/00

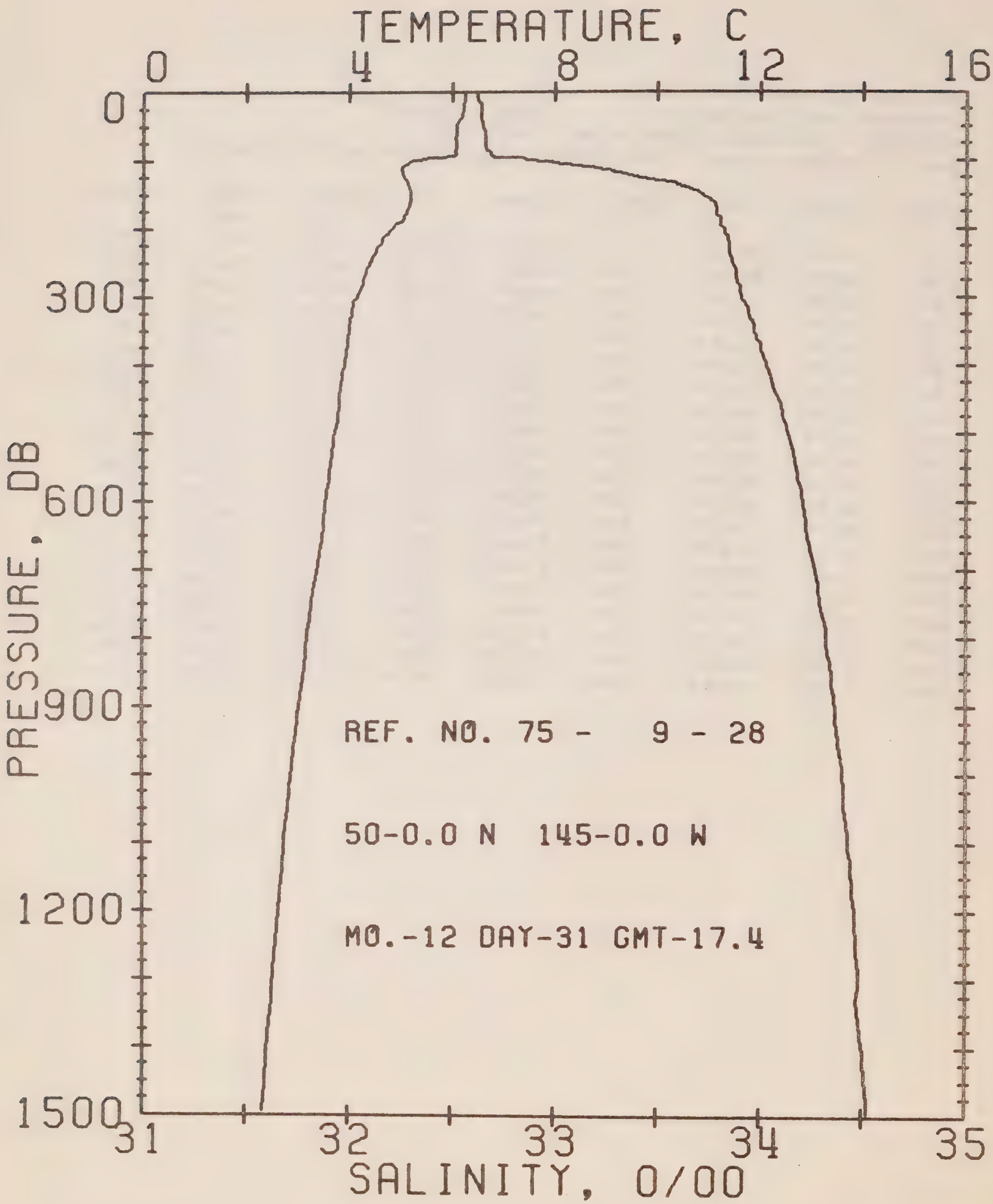
OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 25 DATE 28/12/75
POSITION 50- 0.0N, 145- 0.0W GMT 18.0
RESULTS OF STP CAST 204 POINTS TAKEN FROM ANALOG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | POT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.29 | 32.65 | 0 | 25.69 | 231.4 | 0.0 | 0.0 | 1473. |
| 10 | 6.09 | 32.66 | 10 | 25.72 | 228.6 | 0.23 | 0.01 | 1473. |
| 20 | 5.98 | 32.67 | 20 | 25.74 | 226.7 | 0.46 | 0.05 | 1472. |
| 30 | 5.98 | 32.67 | 30 | 25.74 | 226.8 | 0.68 | 0.10 | 1472. |
| 50 | 5.98 | 32.67 | 50 | 25.74 | 227.0 | 1.14 | 0.29 | 1473. |
| 75 | 5.98 | 32.67 | 75 | 25.74 | 227.3 | 1.71 | 0.65 | 1473. |
| 100 | 5.02 | 33.13 | 99 | 26.22 | 181.9 | 2.23 | 1.12 | 1470. |
| 125 | 5.19 | 33.66 | 124 | 26.62 | 144.3 | 2.65 | 1.59 | 1472. |
| 150 | 5.12 | 33.79 | 149 | 26.73 | 134.4 | 2.99 | 2.07 | 1472. |
| 175 | 4.88 | 33.83 | 174 | 26.79 | 129.0 | 3.32 | 2.62 | 1472. |
| 200 | 4.65 | 33.84 | 199 | 26.82 | 126.0 | 3.64 | 3.23 | 1471. |
| 225 | 4.43 | 33.85 | 223 | 26.85 | 123.3 | 3.95 | 3.90 | 1471. |
| 250 | 4.27 | 33.88 | 248 | 26.89 | 119.3 | 4.26 | 4.64 | 1471. |
| 300 | 4.09 | 33.93 | 298 | 26.95 | 114.3 | 4.84 | 6.28 | 1471. |
| 400 | 3.89 | 34.03 | 397 | 27.05 | 105.4 | 5.94 | 10.19 | 1472. |
| 500 | 3.73 | 34.13 | 496 | 27.15 | 96.8 | 6.94 | 14.79 | 1473. |
| 600 | 3.57 | 34.20 | 595 | 27.21 | 91.2 | 7.88 | 20.04 | 1474. |
| 800 | 3.19 | 34.32 | 793 | 27.35 | 79.4 | 9.58 | 32.12 | 1476. |
| 1000 | 2.85 | 34.40 | 990 | 27.45 | 71.0 | 11.07 | 45.75 | 1478. |
| 1200 | 2.60 | 34.46 | 1188 | 27.51 | 65.1 | 12.43 | 60.99 | 1480. |


TEMPERATURE, C
0
4
8
12
16
0
300
600
900
1200
1500
PRESSURE, DB
REF. NO. 75 - 9 - 26
50-0.0 N 145-0.0 W
MO.-12 DAY-29 GMT-17.3
31
32
33
34
35
SALINITY, 0/00

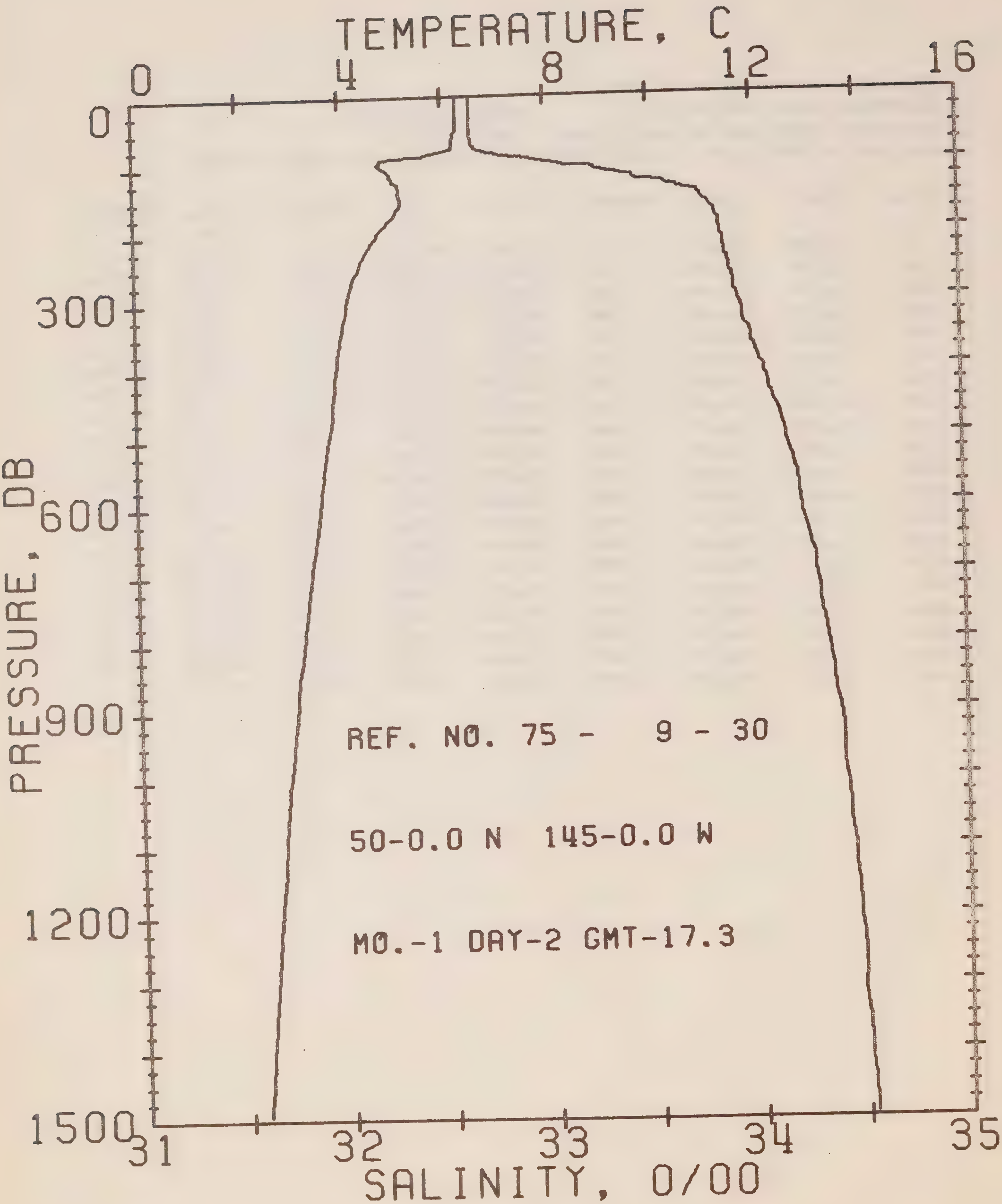
OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 26 DATE 29/12/75
POSITION 50- 0.0N, 145- 0.0W GMT 17.3
RESULTS OF STP CAST 221 POINTS TAKEN FROM ANALOG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | POT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 5.94 | 32.67 | 0 | 25.75 | 225.8 | 0.0 | 0.0 | 1472. |
| 10 | 5.94 | 32.67 | 10 | 25.75 | 226.1 | 0.23 | 0.01 | 1472. |
| 20 | 5.94 | 32.67 | 20 | 25.75 | 226.2 | 0.45 | 0.05 | 1472. |
| 30 | 5.94 | 32.67 | 30 | 25.75 | 226.3 | 0.68 | 0.10 | 1472. |
| 50 | 5.95 | 32.67 | 50 | 25.75 | 226.4 | 1.13 | 0.29 | 1473. |
| 75 | 5.95 | 32.68 | 75 | 25.75 | 226.5 | 1.70 | 0.65 | 1473. |
| 100 | 5.79 | 32.77 | 99 | 25.84 | 217.8 | 2.26 | 1.15 | 1473. |
| 125 | 5.02 | 33.39 | 124 | 26.42 | 162.9 | 2.72 | 1.68 | 1471. |
| 150 | 4.93 | 33.65 | 149 | 26.64 | 142.7 | 3.10 | 2.21 | 1471. |
| 175 | 4.97 | 33.78 | 174 | 26.74 | 133.7 | 3.45 | 2.78 | 1472. |
| 200 | 4.78 | 33.81 | 199 | 26.78 | 129.6 | 3.77 | 3.41 | 1472. |
| 225 | 4.53 | 33.83 | 223 | 26.83 | 125.6 | 4.09 | 4.10 | 1471. |
| 250 | 4.35 | 33.86 | 248 | 26.87 | 122.0 | 4.40 | 4.85 | 1471. |
| 300 | 4.13 | 33.90 | 298 | 26.92 | 116.9 | 5.00 | 6.51 | 1471. |
| 400 | 3.91 | 34.03 | 397 | 27.05 | 105.7 | 6.10 | 10.45 | 1472. |
| 500 | 3.73 | 34.14 | 496 | 27.15 | 96.5 | 7.11 | 15.06 | 1473. |
| 600 | 3.54 | 34.20 | 595 | 27.22 | 90.2 | 8.04 | 20.29 | 1474. |
| 800 | 3.20 | 34.33 | 793 | 27.35 | 79.0 | 9.73 | 32.25 | 1476. |
| 1000 | 2.91 | 34.39 | 990 | 27.43 | 72.4 | 11.23 | 46.05 | 1478. |
| 1200 | 2.63 | 34.45 | 1188 | 27.51 | 65.9 | 12.61 | 61.42 | 1480. |


TEMPERATURE, C
0
4
8
12
16
0
300
600
900
1200
1500
PRESSURE, DB
REF. NO. 75 - 9 - 28
50-0.0 N 145-0.0 W
MO.-12 DAY-31 GMT-17.4
31
32
33
34
35
SALINITY, 0/00

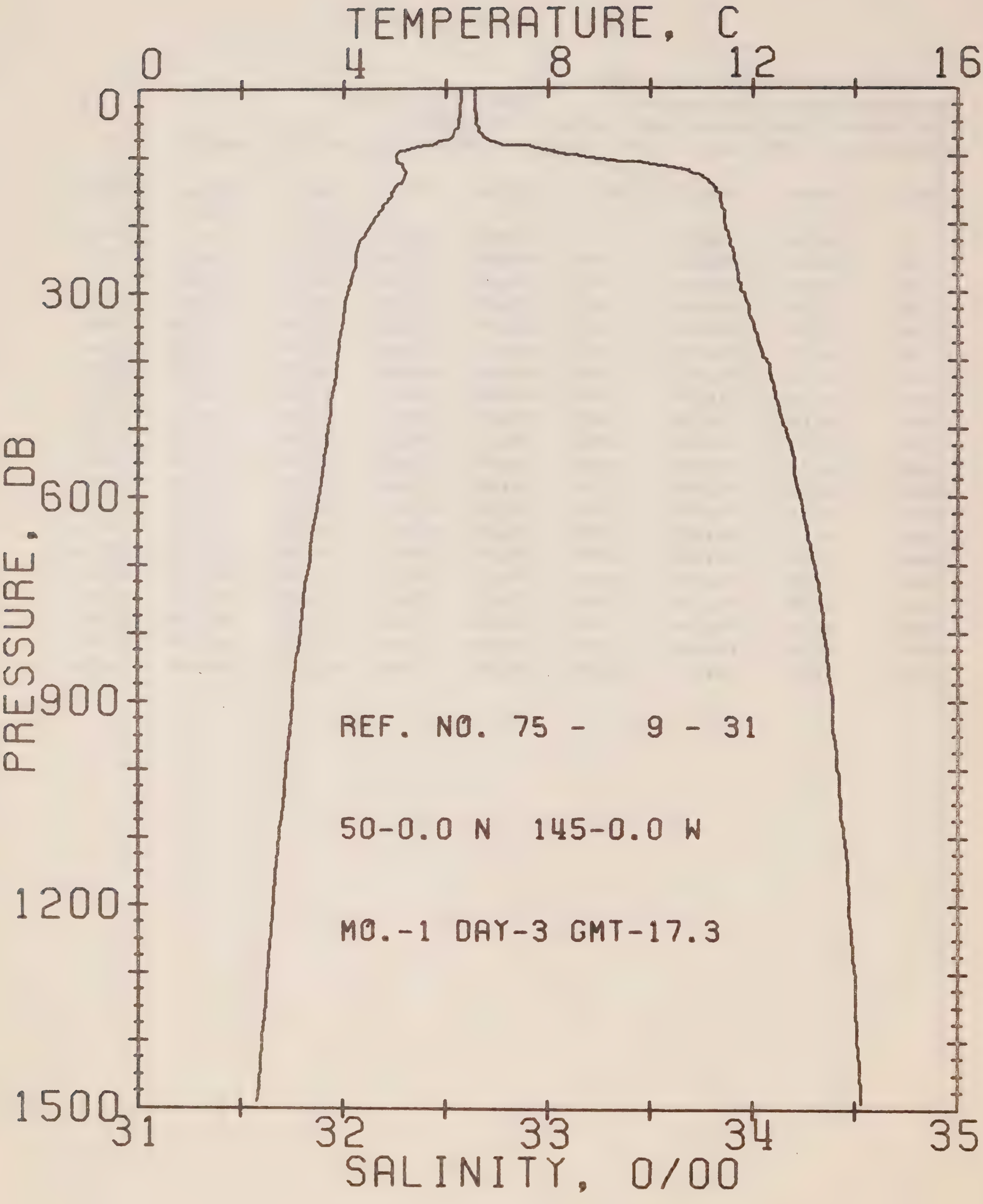
OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 28 DATE 31/12/75
POSITION 50- 0.0N, 145- 0.0W GMT 17.4
RESULTS OF STP CAST 243 POINTS TAKEN FROM ANALOG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | POT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.25 | 32.62 | 0 | 25.67 | 233.2 | 0.0 | 0.0 | 1473. |
| 10 | 6.25 | 32.62 | 10 | 25.67 | 233.5 | 0.23 | 0.01 | 1473. |
| 20 | 6.21 | 32.64 | 20 | 25.69 | 231.7 | 0.47 | 0.05 | 1473. |
| 30 | 6.20 | 32.64 | 30 | 25.69 | 231.6 | 0.70 | 0.11 | 1473. |
| 50 | 6.09 | 32.65 | 50 | 25.71 | 229.8 | 1.16 | 0.29 | 1473. |
| 75 | 6.08 | 32.66 | 75 | 25.72 | 229.2 | 1.73 | 0.66 | 1474. |
| 100 | 5.35 | 32.86 | 99 | 25.97 | 206.1 | 2.29 | 1.16 | 1471. |
| 125 | 5.08 | 33.40 | 124 | 26.43 | 162.5 | 2.74 | 1.67 | 1471. |
| 150 | 5.20 | 33.71 | 149 | 26.66 | 140.9 | 3.12 | 2.19 | 1473. |
| 175 | 5.11 | 33.79 | 174 | 26.73 | 134.6 | 3.46 | 2.76 | 1473. |
| 200 | 4.84 | 33.82 | 199 | 26.78 | 129.5 | 3.79 | 3.39 | 1472. |
| 225 | 4.58 | 33.85 | 223 | 26.84 | 124.7 | 4.11 | 4.08 | 1471. |
| 250 | 4.40 | 33.86 | 248 | 26.86 | 122.3 | 4.41 | 4.83 | 1471. |
| 300 | 4.16 | 33.91 | 298 | 26.93 | 116.5 | 5.01 | 6.50 | 1471. |
| 400 | 3.91 | 34.03 | 397 | 27.05 | 105.7 | 6.12 | 10.43 | 1472. |
| 500 | 3.73 | 34.13 | 496 | 27.15 | 96.7 | 7.13 | 15.06 | 1473. |
| 600 | 3.56 | 34.21 | 595 | 27.22 | 90.3 | 8.06 | 20.28 | 1474. |
| 800 | 3.19 | 34.32 | 793 | 27.35 | 79.3 | 9.76 | 32.37 | 1476. |
| 1000 | 2.89 | 34.40 | 990 | 27.44 | 71.3 | 11.26 | 46.15 | 1478. |
| 1200 | 2.63 | 34.46 | 1188 | 27.51 | 65.4 | 12.63 | 61.47 | 1480. |


TEMPERATURE, C
0
4
8
12
16
0
300
600
900
1200
1500
PRESSURE, DB
REF. NO. 75 - 9 - 30
50-0.0 N 145-0.0 W
MO.-1 DAY-2 GMT-17.3
31
32
33
34
35
SALINITY, 0/00

OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 30 DATE 2/ 1/76
POSITION 50- 0.0N. 145- 0.0W GMT 17.3
RESULTS OF STP CAST 241 POINTS TAKEN FROM ANALOG TRACE

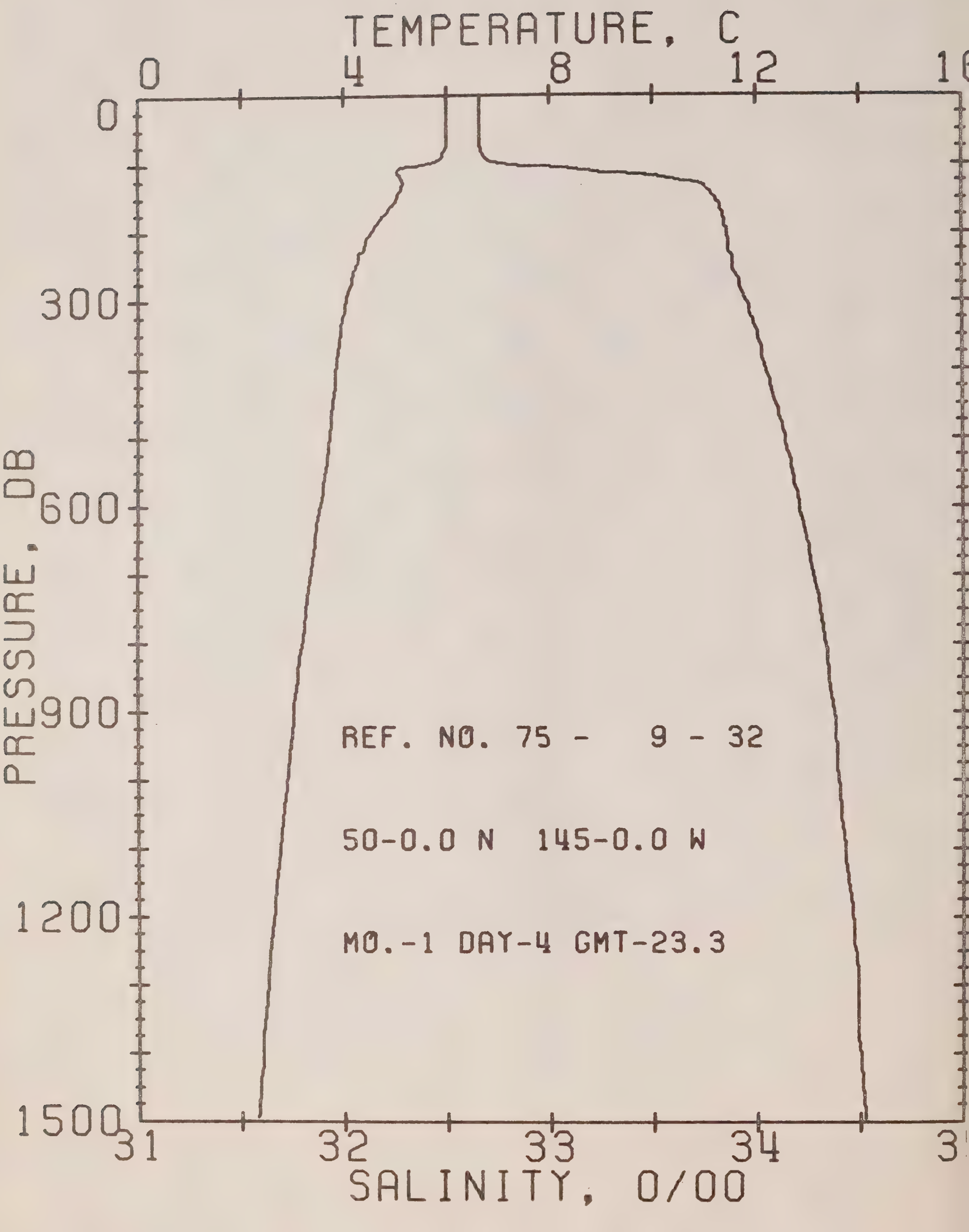
| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | POT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.30 | 32.64 | 0 | 25.68 | 232.3 | 0.C | 0.0 | 1473. |
| 10 | 6.30 | 32.64 | 10 | 25.68 | 232.6 | 0.23 | 0.01 | 1473. |
| 20 | 6.30 | 32.64 | 20 | 25.68 | 232.8 | 0.47 | 0.05 | 1473. |
| 30 | 6.30 | 32.64 | 30 | 25.68 | 232.9 | 0.70 | 0.11 | 1474. |
| 50 | 6.29 | 32.64 | 50 | 25.68 | 232.9 | 1.16 | 0.30 | 1474. |
| 75 | 6.21 | 32.66 | 75 | 25.70 | 230.8 | 1.74 | 0.67 | 1474. |
| 100 | 4.74 | 33.05 | 99 | 26.18 | 185.2 | 2.27 | 1.13 | 1469. |
| 125 | 5.06 | 33.44 | 124 | 26.46 | 159.7 | 2.70 | 1.62 | 1471. |
| 150 | 5.19 | 33.75 | 149 | 26.69 | 138.1 | 3.06 | 2.13 | 1473. |
| 175 | 5.05 | 33.82 | 174 | 26.76 | 131.6 | 3.40 | 2.69 | 1472. |
| 200 | 4.74 | 33.85 | 199 | 26.82 | 126.4 | 3.72 | 3.30 | 1472. |
| 225 | 4.52 | 33.86 | 223 | 26.85 | 123.3 | 4.03 | 3.98 | 1471. |
| 250 | 4.36 | 33.89 | 248 | 26.89 | 119.8 | 4.33 | 4.71 | 1471. |
| 300 | 4.11 | 33.93 | 298 | 26.95 | 114.3 | 4.92 | 6.35 | 1471. |
| 400 | 3.90 | 34.04 | 397 | 27.06 | 104.4 | 6.02 | 10.27 | 1472. |
| 500 | 3.74 | 34.15 | 496 | 27.16 | 95.9 | 7.02 | 14.86 | 1473. |
| 600 | 3.55 | 34.22 | 595 | 27.23 | 89.5 | 7.94 | 20.02 | 1474. |
| 800 | 3.19 | 34.34 | 793 | 27.36 | 78.1 | 9.61 | 31.90 | 1476. |
| 1000 | 2.86 | 34.41 | 990 | 27.45 | 70.1 | 11.09 | 45.39 | 1478. |
| 1200 | 2.62 | 34.47 | 1188 | 27.52 | 64.5 | 12.43 | 60.45 | 1480. |



TEMPERATURE, C
0
4
8
12
16
0
300
600
900
1200
1500
PRESSURE, DB
REF. NO. 75 - 9 - 31
50-0.0 N 145-0.0 W
MO.-1 DAY-3 GMT-17.3
31
32
33
34
35
SALINITY, 0/00

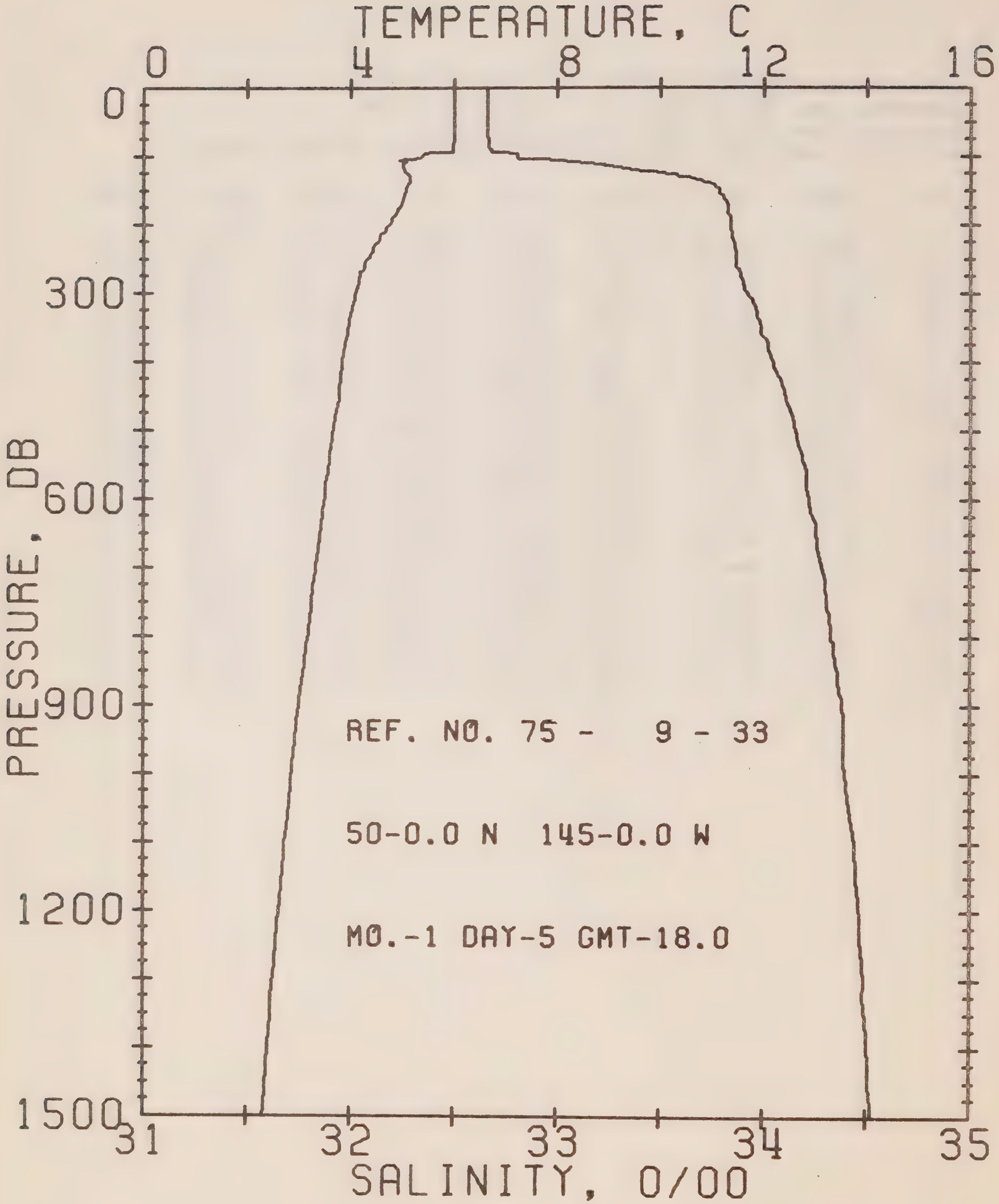
OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 31          DATE  3/ 1/76
POSITION  50- 0.0N, 145- 0.0W    GMT 17.3
RESULTS OF STP CAST   235 POINTS TAKEN FROM ANALOG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | POT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.28 | 32.64 | 0 | 25.68 | 232.0 | 0.0 | 0.0 | 1473. |
| 10 | 6.29 | 32.64 | 10 | 25.68 | 232.4 | 0.23 | 0.01 | 1473. |
| 20 | 6.28 | 32.64 | 20 | 25.68 | 232.6 | 0.46 | 0.05 | 1473. |
| 30 | 6.27 | 32.64 | 30 | 25.68 | 232.4 | 0.70 | 0.11 | 1474. |
| 50 | 6.25 | 32.65 | 50 | 25.69 | 231.7 | 1.16 | 0.30 | 1474. |
| 75 | 6.06 | 32.70 | 75 | 25.75 | 226.0 | 1.74 | 0.66 | 1473. |
| 100 | 5.01 | 33.15 | 99 | 26.23 | 180.6 | 2.25 | 1.11 | 1470. |
| 125 | 5.21 | 33.71 | 124 | 26.65 | 141.1 | 2.64 | 1.56 | 1472. |
| 150 | 4.98 | 33.82 | 149 | 26.77 | 130.6 | 2.98 | 2.03 | 1472. |
| 175 | 4.77 | 33.85 | 174 | 26.81 | 126.2 | 3.30 | 2.56 | 1471. |
| 200 | 4.54 | 33.86 | 199 | 26.85 | 123.2 | 3.61 | 3.16 | 1471. |
| 225 | 4.32 | 33.89 | 223 | 26.90 | 118.9 | 3.91 | 3.81 | 1470. |
| 250 | 4.25 | 33.91 | 248 | 26.92 | 116.9 | 4.20 | 4.53 | 1471. |
| 300 | 4.07 | 33.95 | 298 | 26.97 | 112.6 | 4.78 | 6.14 | 1471. |
| 400 | 3.88 | 34.07 | 397 | 27.08 | 102.3 | 5.86 | 9.98 | 1472. |
| 500 | 3.71 | 34.16 | 496 | 27.17 | 94.8 | 6.85 | 14.51 | 1473. |
| 600 | 3.53 | 34.23 | 595 | 27.24 | 88.4 | 7.76 | 19.63 | 1474. |
| 800 | 3.16 | 34.34 | 793 | 27.37 | 77.2 | 9.40 | 31.29 | 1475. |
| 1000 | 2.88 | 34.41 | 990 | 27.45 | 70.6 | 10.87 | 44.73 | 1478. |
| 1200 | 2.62 | 34.47 | 1188 | 27.52 | 64.5 | 12.22 | 59.80 | 1480. |


TEMPERATURE, C
0
4
8
12
PRESSURE, DB
0
300
600
900
1200
1500
31
32
33
34
SALINITY, 0/00
REF. NO. 75 - 9 - 32
50-0.0 N 145-0.0 W
MO.-1 DAY-4 GMT-23.3

OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 32 DATE 4/ 1/76
POSITION 50- 0.0N, 145- 0.0W GMT 23.3
RESULTS OF STP CAST 219 POINTS TAKEN FROM ANALOG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | POT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.00 | 32.66 | 0 | 25.73 | 227.2 | 0.0 | 0.0 | 1472. |
| 10 | 6.00 | 32.66 | 10 | 25.73 | 227.5 | 0.23 | 0.01 | 1472. |
| 20 | 6.00 | 32.66 | 20 | 25.73 | 227.7 | 0.46 | 0.05 | 1472. |
| 30 | 6.00 | 32.66 | 30 | 25.73 | 227.8 | 0.68 | 0.10 | 1472. |
| 50 | 6.01 | 32.66 | 50 | 25.73 | 228.1 | 1.14 | 0.29 | 1473. |
| 75 | 5.99 | 32.66 | 75 | 25.73 | 228.2 | 1.71 | 0.65 | 1473. |
| 100 | 5.68 | 32.77 | 99 | 25.86 | 216.5 | 2.27 | 1.16 | 1472. |
| 125 | 5.15 | 33.64 | 124 | 26.61 | 145.7 | 2.71 | 1.66 | 1472. |
| 150 | 5.04 | 33.80 | 149 | 26.74 | 132.8 | 3.05 | 2.13 | 1472. |
| 175 | 4.78 | 33.84 | 174 | 26.81 | 127.2 | 3.38 | 2.67 | 1471. |
| 200 | 4.55 | 33.86 | 199 | 26.85 | 123.4 | 3.69 | 3.27 | 1471. |
| 225 | 4.39 | 33.87 | 223 | 26.87 | 121.1 | 4.00 | 3.93 | 1471. |
| 250 | 4.24 | 33.89 | 248 | 26.90 | 118.3 | 4.30 | 4.65 | 1470. |
| 300 | 4.04 | 33.95 | 298 | 26.97 | 112.3 | 4.87 | 6.27 | 1471. |
| 400 | 3.86 | 34.05 | 397 | 27.07 | 104.0 | 5.95 | 10.10 | 1472. |
| 500 | 3.73 | 34.14 | 496 | 27.15 | 96.3 | 6.95 | 14.68 | 1473. |
| 600 | 3.55 | 34.21 | 595 | 27.23 | 89.9 | 7.88 | 19.90 | 1474. |
| 800 | 3.18 | 34.33 | 793 | 27.36 | 78.2 | 9.56 | 31.82 | 1476. |
| 1000 | 2.89 | 34.40 | 990 | 27.44 | 71.8 | 11.05 | 45.49 | 1478. |
| 1200 | 2.62 | 34.46 | 1188 | 27.52 | 64.9 | 12.42 | 60.82 | 1480. |



TEMPERATURE, C
0
4
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12
16
PRESSURE, DB
0
300
600
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1200
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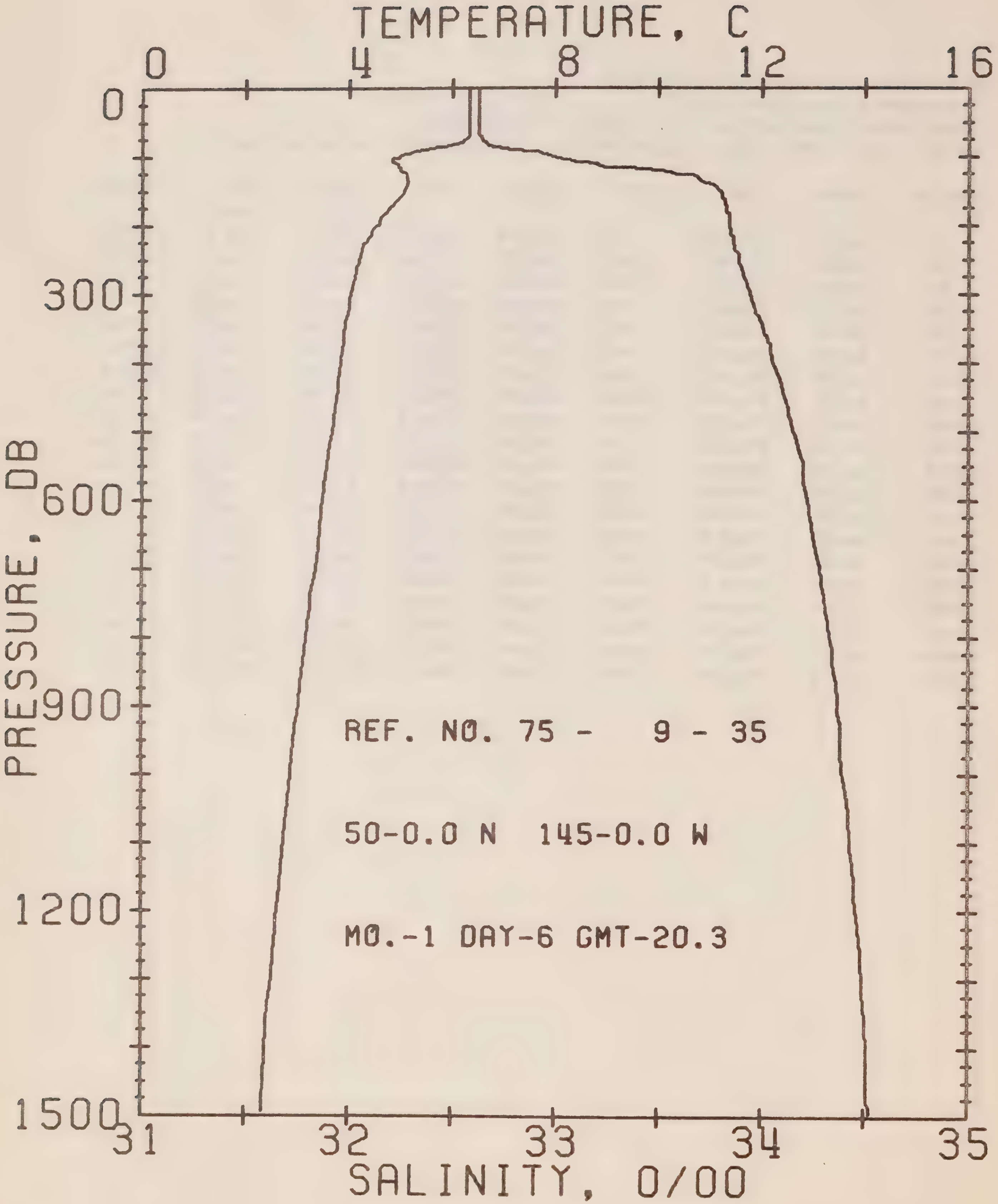
REF. NO. 75 - 9 - 33
50-0.0 N 145-0.0 W
MO.-1 DAY-5 GMT-18.0
31
32
33
34
35
SALINITY, 0/00

OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 33 DATE 5/ 1/76
POSITION 50- 0.0N, 145- 0.0W GMT 18.0
RESULTS OF STP CAST 233 POINTS TAKEN FROM ANALOG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | POT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.00 | 32.66 | 0 | 25.73 | 227.2 | 0.0 | 0.0 | 1472. |
| 10 | 6.01 | 32.66 | 10 | 25.73 | 227.6 | 0.23 | 0.01 | 1472. |
| 20 | 6.01 | 32.66 | 20 | 25.73 | 227.7 | 0.46 | 0.05 | 1472. |
| 30 | 6.01 | 32.66 | 30 | 25.73 | 227.9 | 0.68 | 0.10 | 1473. |
| 50 | 6.01 | 32.66 | 50 | 25.73 | 228.1 | 1.14 | 0.29 | 1473. |
| 75 | 6.00 | 32.67 | 75 | 25.74 | 227.5 | 1.71 | 0.65 | 1473. |
| 100 | 5.38 | 32.81 | 99 | 25.92 | 210.1 | 2.27 | 1.15 | 1471. |
| 125 | 5.13 | 33.55 | 124 | 26.54 | 152.2 | 2.72 | 1.67 | 1472. |
| 150 | 5.07 | 33.79 | 149 | 26.73 | 133.9 | 3.07 | 2.16 | 1472. |
| 175 | 4.94 | 33.83 | 174 | 26.78 | 129.7 | 3.40 | 2.70 | 1472. |
| 200 | 4.75 | 33.84 | 199 | 26.81 | 127.0 | 3.72 | 3.32 | 1472. |
| 225 | 4.53 | 33.86 | 223 | 26.85 | 123.4 | 4.04 | 4.00 | 1471. |
| 250 | 4.32 | 33.87 | 248 | 26.88 | 120.6 | 4.34 | 4.73 | 1471. |
| 300 | 4.08 | 33.92 | 298 | 26.94 | 114.9 | 4.93 | 6.39 | 1471. |
| 400 | 3.85 | 34.05 | 397 | 27.07 | 103.7 | 6.02 | 10.26 | 1471. |
| 500 | 3.67 | 34.15 | 496 | 27.17 | 94.6 | 7.01 | 14.79 | 1472. |
| 600 | 3.50 | 34.22 | 595 | 27.24 | 88.7 | 7.92 | 19.90 | 1474. |
| 800 | 3.18 | 34.33 | 793 | 27.36 | 78.5 | 9.58 | 31.73 | 1476. |
| 1000 | 2.86 | 34.39 | 990 | 27.44 | 71.5 | 11.07 | 45.31 | 1478. |
| 1200 | 2.62 | 34.46 | 1188 | 27.52 | 64.9 | 12.43 | 60.53 | 1480. |


TEMPERATURE, C
0
4
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12
16
0
300
600
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1200
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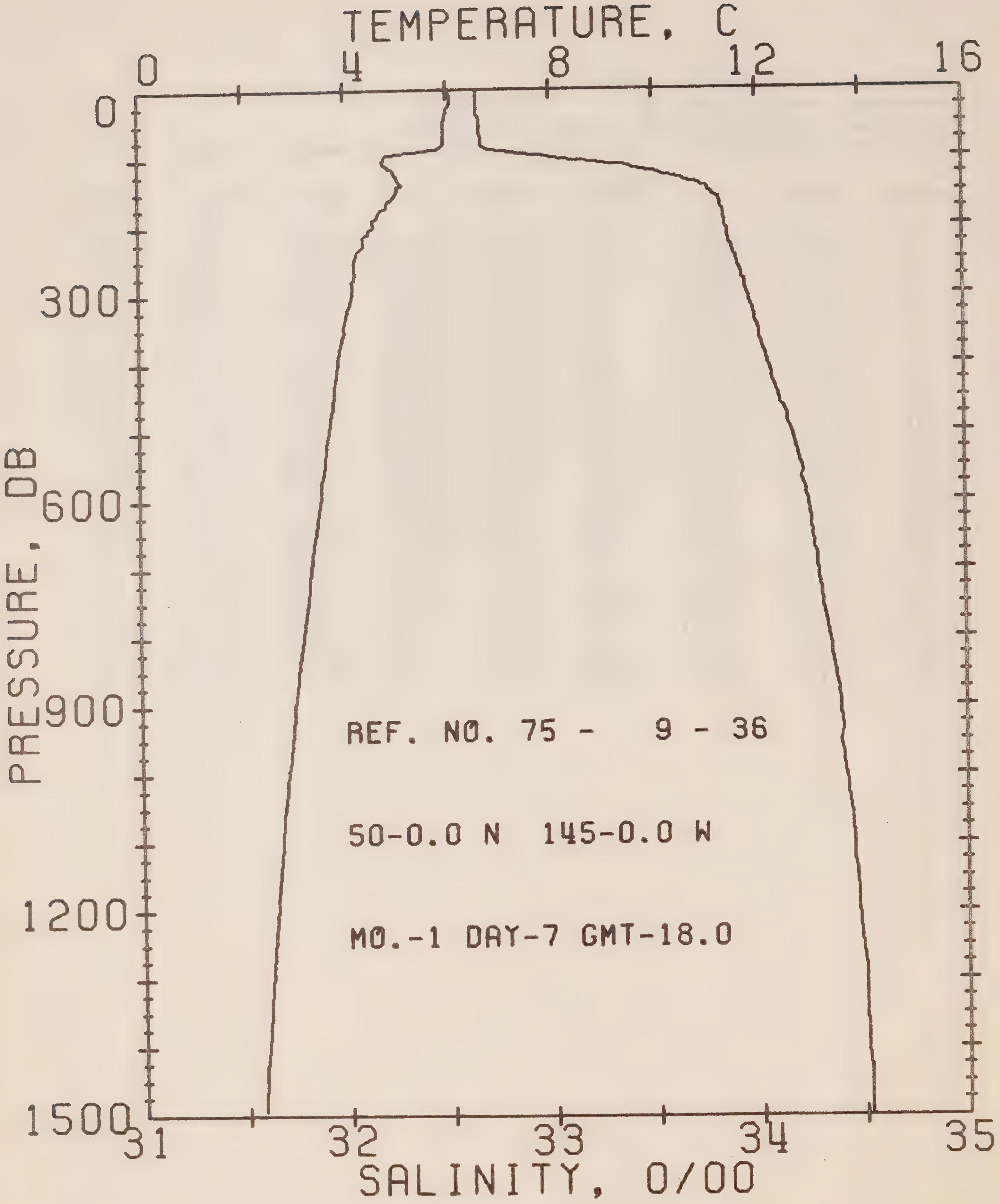
PRESSURE, DB
REF. NO. 75 - 9 - 35
50-0.0 N 145-0.0 W
MO.-1 DAY-6 GMT-20.3
31
32
33
34
35
SALINITY, 0/00

OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 35 DATE 6/ 1/76
POSITION 50- 0.0N. 145- 0.0W GMT 20.3
RESULTS OF STP CAST 219 POINTS TAKEN FROM ANALOG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | POT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.32 | 32.63 | 0 | 25.67 | 233.3 | 0.0 | 0.0 | 1473. |
| 10 | 6.32 | 32.63 | 10 | 25.67 | 233.5 | 0.23 | 0.01 | 1473. |
| 20 | 6.31 | 32.63 | 20 | 25.67 | 233.6 | 0.47 | 0.05 | 1474. |
| 30 | 6.32 | 32.63 | 30 | 25.67 | 233.9 | 0.70 | 0.11 | 1474. |
| 50 | 6.32 | 32.63 | 50 | 25.67 | 234.1 | 1.17 | 0.30 | 1474. |
| 75 | 6.24 | 32.65 | 75 | 25.69 | 231.8 | 1.75 | 0.67 | 1474. |
| 100 | 4.96 | 32.99 | 99 | 26.11 | 192.0 | 2.29 | 1.15 | 1470. |
| 125 | 5.11 | 33.59 | 124 | 26.57 | 149.0 | 2.73 | 1.64 | 1472. |
| 150 | 5.07 | 33.79 | 149 | 26.74 | 133.4 | 3.07 | 2.13 | 1472. |
| 175 | 4.78 | 33.83 | 174 | 26.80 | 127.9 | 3.40 | 2.67 | 1471. |
| 200 | 4.55 | 33.84 | 199 | 26.83 | 124.9 | 3.72 | 3.27 | 1471. |
| 225 | 4.30 | 33.86 | 223 | 26.87 | 120.9 | 4.02 | 3.94 | 1470. |
| 250 | 4.19 | 33.89 | 248 | 26.91 | 117.8 | 4.32 | 4.66 | 1470. |
| 300 | 4.02 | 33.94 | 298 | 26.97 | 112.6 | 4.90 | 6.27 | 1470. |
| 400 | 3.84 | 34.05 | 397 | 27.07 | 103.3 | 5.97 | 10.10 | 1471. |
| 500 | 3.67 | 34.15 | 496 | 27.17 | 94.9 | 6.96 | 14.62 | 1472. |
| 600 | 3.50 | 34.22 | 595 | 27.24 | 88.5 | 7.87 | 19.73 | 1473. |
| 800 | 3.17 | 34.33 | 793 | 27.36 | 78.3 | 9.54 | 31.62 | 1476. |
| 1000 | 2.87 | 34.39 | 990 | 27.44 | 71.9 | 11.04 | 45.32 | 1478. |
| 1200 | 2.61 | 34.46 | 1188 | 27.51 | 65.5 | 12.40 | 60.62 | 1480. |



TEMPERATURE, C
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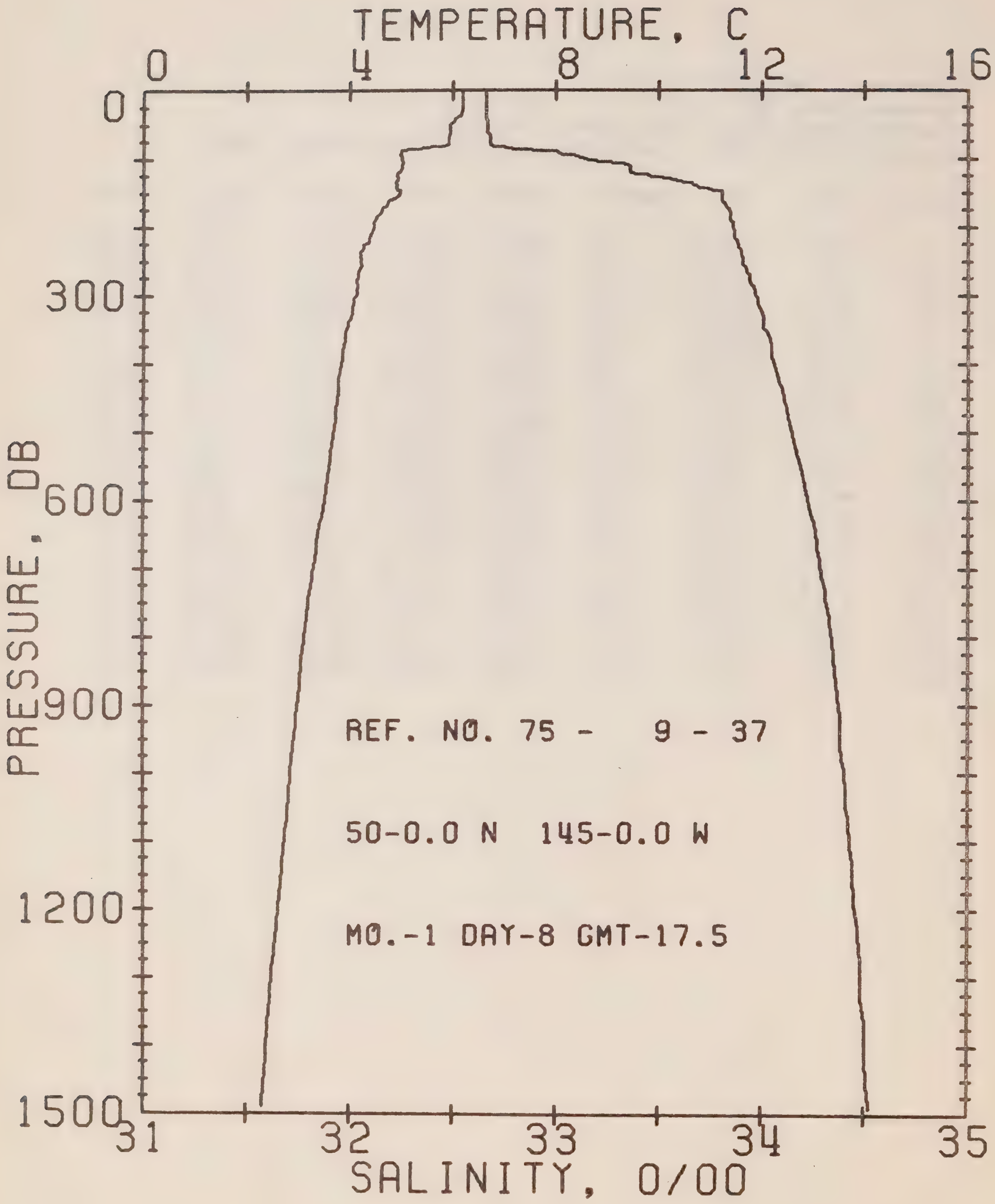
8
12
16
0
300
600
900
1200
1500
PRESSURE, DB
REF. NO. 75 - 9 - 36
50-0.0 N 145-0.0 W
MO.-1 DAY-7 GMT-18.0
31
32
33
34
35
SALINITY, 0/00

OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 36 DATE 7/ 1/76
POSITION 50- 0.0N, 145- 0.0W GMT 18.0
RESULTS OF STP CAST 245 POINTS TAKEN FROM ANALOG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | POT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.05 | 32.65 | 0 | 25.72 | 228.6 | 0.0 | 0.0 | 1472. |
| 10 | 6.07 | 32.65 | 10 | 25.71 | 229.1 | 0.23 | 0.01 | 1472. |
| 20 | 6.07 | 32.65 | 20 | 25.71 | 229.2 | 0.46 | 0.05 | 1473. |
| 30 | 6.00 | 32.65 | 30 | 25.72 | 228.6 | 0.69 | 0.11 | 1472. |
| 50 | 5.95 | 32.66 | 50 | 25.74 | 227.4 | 1.14 | 0.29 | 1473. |
| 75 | 5.94 | 32.67 | 75 | 25.75 | 226.8 | 1.71 | 0.65 | 1473. |
| 100 | 4.79 | 33.02 | 99 | 26.16 | 188.0 | 2.25 | 1.13 | 1469. |
| 125 | 5.02 | 33.55 | 124 | 26.55 | 151.0 | 2.66 | 1.60 | 1471. |
| 150 | 5.03 | 33.77 | 149 | 26.72 | 134.8 | 3.02 | 2.10 | 1472. |
| 175 | 4.75 | 33.84 | 174 | 26.81 | 126.8 | 3.34 | 2.64 | 1471. |
| 200 | 4.56 | 33.85 | 199 | 26.84 | 124.2 | 3.66 | 3.24 | 1471. |
| 225 | 4.38 | 33.87 | 223 | 26.87 | 121.0 | 3.96 | 3.90 | 1471. |
| 250 | 4.20 | 33.90 | 248 | 26.92 | 117.1 | 4.26 | 4.62 | 1470. |
| 300 | 4.15 | 33.95 | 298 | 26.96 | 113.1 | 4.83 | 6.23 | 1471. |
| 400 | 3.86 | 34.05 | 397 | 27.07 | 103.6 | 5.92 | 10.08 | 1472. |
| 500 | 3.68 | 34.16 | 496 | 27.18 | 94.3 | 6.91 | 14.62 | 1473. |
| 600 | 3.50 | 34.24 | 595 | 27.25 | 87.4 | 7.81 | 19.69 | 1474. |
| 800 | 3.15 | 34.34 | 793 | 27.37 | 77.4 | 9.47 | 31.45 | 1475. |
| 1000 | 2.82 | 34.41 | 990 | 27.46 | 69.7 | 10.93 | 44.85 | 1477. |
| 1200 | 2.57 | 34.47 | 1188 | 27.53 | 63.8 | 12.26 | 59.72 | 1480. |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0
4
8
12
16
0
300
600
900
1200
1500
PRESSURE, DB
REF. NO. 75 - 9 - 37
50-0.0 N 145-0.0 W
MO.-1 DAY-8 GMT-17.5
31
32
33
34
35
SALINITY, 0/00

OFFSHORE OCEANOGRAPHY GROUP
REFERENCE NO. 75- 9- 37 DATE 8/ 1/76
POSITION 50- 0.0N, 145- 0.0W GMT 17.5
RESULTS OF STP CAST 236 POINTS TAKEN FROM ANALOG TRACE

| PRESS | TEMP | SAL | DEPTH | SIGMA T | SVA | DELTA D | POT. EN | SOUND |
|---|---|---|---|---|---|---|---|---|
| 0 | 6.20 | 32.66 | 0 | 25.71 | 229.6 | 0.0 | 0.0 | 1473. |
| 10 | 6.20 | 32.66 | 10 | 25.71 | 229.9 | 0.23 | 0.01 | 1473. |
| 20 | 6.20 | 32.66 | 20 | 25.71 | 230.0 | 0.46 | 0.05 | 1473. |
| 30 | 6.18 | 32.66 | 30 | 25.71 | 229.9 | 0.69 | 0.11 | 1473. |
| 50 | 5.96 | 32.67 | 50 | 25.74 | 226.8 | 1.15 | 0.29 | 1473. |
| 75 | 5.93 | 32.68 | 75 | 25.75 | 225.9 | 1.71 | 0.65 | 1473. |
| 100 | 5.01 | 33.14 | 99 | 26.23 | 181.4 | 2.22 | 1.10 | 1470. |
| 125 | 4.91 | 33.47 | 124 | 26.50 | 155.8 | 2.64 | 1.58 | 1471. |
| 150 | 4.99 | 33.81 | 149 | 26.76 | 131.4 | 2.99 | 2.08 | 1472. |
| 175 | 4.62 | 33.84 | 174 | 26.82 | 125.4 | 3.32 | 2.61 | 1471. |
| 200 | 4.47 | 33.86 | 199 | 26.86 | 122.5 | 3.63 | 3.20 | 1471. |
| 225 | 4.30 | 33.89 | 223 | 26.90 | 118.7 | 3.93 | 3.86 | 1470. |
| 250 | 4.22 | 33.91 | 248 | 26.92 | 116.6 | 4.22 | 4.57 | 1470. |
| 300 | 4.13 | 33.97 | 298 | 26.98 | 111.6 | 4.79 | 6.16 | 1471. |
| 400 | 3.83 | 34.06 | 397 | 27.08 | 102.7 | 5.86 | 9.95 | 1471. |
| 500 | 3.70 | 34.15 | 496 | 27.16 | 95.6 | 6.84 | 14.48 | 1473. |
| 600 | 3.52 | 34.22 | 595 | 27.24 | 88.8 | 7.76 | 19.63 | 1474. |
| 800 | 3.13 | 34.34 | 793 | 27.37 | 77.3 | 9.41 | 31.36 | 1475. |
| 1000 | 2.86 | 34.40 | 990 | 27.45 | 71.0 | 10.90 | 44.95 | 1478. |
| 1200 | 2.61 | 34.45 | 1188 | 27.51 | 65.5 | 12.26 | 60.26 | 1480. |

SURFACE SALINITY AND TEMPERATURE OBSERVATIONS

(P-75-9)

SURFACE SALINITY AND TEMPERATURE OBSERVATIONS
CRUISE REFERENCE NUMBER 75- 9

| DATE/TIME | | | | SALINITY | TEMP | LONGITUDE |
|---|---|---|---|---|---|---|
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| 75 | 12 | 6 | 345 | 31.268 | 8.5 | 125-33 |
| 75 | 12 | 6 | 545 | 31.651 | 8.7 | 126- 0 |
| 75 | 12 | 6 | 830 | 31.058 | 9.3 | 126-40 |
| 75 | 12 | 6 | 1230 | 31.993 | 8.5 | 127-40 |
| 75 | 12 | 6 | 1650 | 32.397 | 8.2 | 128-40 |
| 75 | 12 | 7 | 635 | | 8.6 | 130-40 |
| 75 | 12 | 7 | 1230 | | 8.0 | 132-40 |
| 75 | 12 | 7 | 1715 | 32.432 | 7.5 | 134-40 |
| 75 | 12 | 7 | 2315 | 32.460 | 7.5 | 136-40 |
| 75 | 12 | 8 | 440 | | 7.4 | 138-40 |
| 75 | 12 | 8 | 1035 | 32.568 | 6.9 | 140-40 |
| 75 | 12 | 8 | 1900 | 32.628 | 6.5 | 142-40 |
| 75 | 12 | 9 | 0 | | 6.6 | ON STATION |
| 75 | 12 | 10 | 0 | 32.629 | 6.5 | ON STATION |
| 75 | 12 | 11 | 0 | 32.620 | 6.5 | ON STATION |
| 75 | 12 | 12 | 0 | 32.623 | 6.4 | ON STATION |
| 75 | 12 | 13 | 0 | 32.631 | 6.3 | ON STATION |
| 75 | 12 | 14 | 0 | 32.623 | 6.4 | ON STATION |
| 75 | 12 | 15 | 0 | 32.630 | 6.4 | ON STATION |
| 75 | 12 | 16 | 0 | 32.623 | 6.5 | ON STATION |
| 75 | 12 | 17 | 0 | 32.611 | 6.5 | ON STATION |
| 75 | 12 | 18 | 0 | 32.596 | 6.5 | ON STATION |
| 75 | 12 | 19 | 0 | 32.605 | 6.6 | ON STATION |
| 75 | 12 | 20 | 0 | 32.639 | 6.4 | ON STATION |
| 75 | 12 | 21 | 0 | 32.642 | 6.4 | ON STATION |
| 75 | 12 | 22 | 0 | 32.656 | 6.1 | ON STATION |
| 75 | 12 | 23 | 0 | 32.636 | 6.1 | ON STATION |
| 75 | 12 | 24 | 0 | 32.641 | 6.1 | ON STATION |
| 75 | 12 | 25 | 0 | 32.649 | 5.9 | ON STATION |
| 75 | 12 | 26 | 0 | 32.647 | 6.0 | ON STATION |
| 75 | 12 | 27 | 0 | 32.659 | 6.0 | ON STATION |
| 75 | 12 | 28 | 0 | 32.656 | 5.9 | ON STATION |
| 75 | 12 | 29 | 0 | 32.655 | 6.0 | ON STATION |
| 75 | 12 | 30 | 0 | 32.656 | 5.9 | ON STATION |
| 75 | 12 | 31 | 0 | 32.656 | 6.0 | ON STATION |
| 76 | 1 | 1 | 0 | 32.623 | 6.0 | ON STATION |
| 76 | 1 | 2 | 0 | 32.599 | 6.4 | ON STATION |
| 76 | 1 | 3 | 0 | 32.623 | 6.3 | ON STATION |
| 76 | 1 | 4 | 0 | 32.609 | 6.3 | ON STATION |
| 76 | 1 | 5 | 0 | 32.626 | 5.9 | ON STATION |
| 76 | 1 | 6 | 0 | 32.628 | 5.9 | ON STATION |
| 76 | 1 | 7 | 0 | 32.620 | 6.2 | ON STATION |
| 76 | 1 | 8 | 0 | 32.647 | 5.9 | ON STATION |
| 76 | 1 | 9 | 0 | 32.616 | 6.1 | ON STATION |

SURFACE SALINITY AND TEMPERATURE OBSERVATIONS
CRUISE REFERENCE NUMBER 75- 9

| DATE/TIME | | | | SALINITY | TEMP | LONGITUDE |
|---|---|---|---|---|---|---|
| YR | MO | DY | GMT | 0/00 | C | WEST |
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| 76 | 1 | 9 | 520 | 32.522 | 6.3 | 140-41 |
| 76 | 1 | 9 | 1000 | 32.504 | 6.4 | 138-40 |
| 76 | 1 | 9 | 1425 | 32.466 | 6.4 | 136-40 |
| 76 | 1 | 9 | 1910 | 32.450 | 6.7 | 134-40 |
| 76 | 1 | 10 | 45 | 32.476 | 6.8 | 132-40 |
| 76 | 1 | 10 | 1055 | 32.002 | 7.8 | 128-40 |
| 76 | 1 | 10 | 1700 | 29.750 | 7.5 | 126-11 |
| 76 | 1 | 10 | 2000 | 29.612 | 7.8 | 125-35 |

Pacific Marine Science Report 76-17



# PRESSURE DIFFERENCES AS A MEASURE OF CURRENTS IN JUAN DE FUCA STRAIT

by

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Victoria, B.C.

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*Pacific Marine Science Report 76-17*

# PRESSURE DIFFERENCES AS A MEASURE OF CURRENTS IN JUAN DE FUCA STRAIT

by

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Institute of Ocean Sciences, Patricia Bay
Victoria, B.C.

July 1976

This is a manuscript which has received only limited circulation. On citing this report in a bibliography, the title should be followed by the words "UNPUBLISHED MANUSCRIPT" which is in accordance with accepted bibliographic custom.

Acknowledgements

Special thanks to all the personnel of Tidal and Current Survey, Ocean and Aquatic Sciences, Pacific Region. In particular, I am grateful to Mr. S. O. Wigen who suggested the project; to Mr. W. S. Huggett who expertly supervised the field work of this study; and to Mr. A. Douglas whose advice and assistance was indispensable in processing the data. Dr. R. E. Thomson, Offshore Oceanography Group of Ocean and Aquatic Sciences provided unfailing assistance and encouragement in all phases of the study. I also thank Drs. S. Pond, M. Miyake and P. LeBlond of the Institute of Oceanography, University of British Columbia for their helpful discussions.

## 1. Introduction

With the development of new pressure transducers, the accuracy of bottom pressure measurements has been improved considerably. This report examines the feasibility of using such accurate pressure measurements to determine spatial pressure differences and from these the currents flowing through a strait. If such a method were practical, an "on-line" water level system such as that envisioned by Godin (1975) could be used to provide immediate values of the currents.

This study has several facets. First, the literature was searched for related studies (Section 2) and the equations of motion examined to determine the size of pressure differences which would be encountered in a strait (Section 3). A field experiment was then designed and carried out in Juan de Fuca Strait from late May to mid-July, 1975 (Section 4). In this report, a summary of the pertinent data is presented in Section 5 while a complete description is available in Fissel and Huggett (1976). An analysis of the data was made using both linear regression and cross-spectral analysis techniques (Section 6) and the results are discussed in Sections 7, 8 and 9.

## 2. Historical Background

The study of changes in sea level, and therefore of bottom pressure changes, began centuries ago. Lisitzin (1974) presents an extensive review of this topic. However, direct comparisons of spatial changes in bottom pressures and their relation to currents are rather limited in number owing to the difficulty of taking direct synoptic measurements.

In the studies that do exist, pressure differences are determined in three different ways. The first is to measure these directly from bottom mounted pressure gauges, a method which has only become possible in recent years with the development of new pressure transducers such as the Vibrotron or quartz crystal sensor. The second method is to use differences in sea levels as a measure of pressure differences. While such data is more widely available, often tide gauges are located in harbours or other restricted basins where local effects such as winds or seiches can produce sea level changes that are not representative of the area as a whole. Furthermore, mechanical tide gauges are inherently less accurate than direct pressure measurements. Finally, the geostrophic method, whereby the vertical density distribution (as computed from measurements of temperature and salinity) is assumed to determine the pressure relative to a reference level is widely used. From two such sets of observations, the relative current flowing between the two locations may be determined. Although descriptions of currents are often inferred from the geostrophic method, there exist few direct comparisons of the geostrophic current with actual current observations.

For some of the channels and straits adjacent to the British Isles, studies have been made of the relationship between currents and

sea level differences. Bowden (1956) showed residual currents (the remainder after removing the daily tidal currents) in the Straits of Dover are correlated to the local wind and to sea level differences between either end of the strait. Other investigators (Harvey, 1968 and Dyer and Lasta-King, 1975) have subsequently used sea level differences along a strait to predict currents through it. Sea level differences across a strait have been examined theoretically by Cartwright and Crease (1963) as part of a study to compare the geodetic reference levels of England and France. Using currents measured from potential differences in telephone cables extending across the Straits of Dover, they applied the results of their analysis to determine the mean sea level difference between either side. Howarth (1975) has measured residual currents in St. Georges Channel, between England and Ireland. However, he found no evidence of sea level differences across the channel resulting from measured current surges.

In the Florida Straits, Broida (1969) has compared the geostrophic currents determined from density measurements with the measured currents. The two quantities are in good agreement if the measurements are made simultaneously. However considerable differences occur if observations were separated in time even by as a little as a few hours. Fluctuations of the Florida Current as inferred from sea level differences across the strait are also discussed by Wunsch et al (1969) although no direct current measurements were made.

Measured currents were compared with the geostrophic currents in the St. Lawrence estuary by Forrester (1967). He found that changes in the densities are correlated with the baroclinicity of the residual currents if the computed geostrophic currents are averaged over several days.

Direct measurements of bottom pressure differences have been made as a part of the recent MODE*experiment (Brown et al, 1975). Unfortunately, the pressure differences detected on the deep ocean floor were only marginally above the noise level of the instruments and it was not possible to correlate them with the measured currents. Hayes and Holbrook report that measurements of bottom pressures and the study of their relation to currents are underway in the Gulf of Alaska. (Hayes, personal communication.)

In summary, the results discussed above, while not conclusive, suggest the method of using pressure differences to measure currents has some promise. The recent developments in pressure transducers should overcome many of the problems of the past.

## 3. Theory

Following Cartwright and Crease (1963), the cross-strait equation of motion is examined and following some simplifications, rewritten as the sum of terms contributing to the cross-strait pressure difference. A comparison is made of the size of each term, based on observations in Juan de Fuca Strait. Up-strait pressure differences are also estimated where possible.

*Mid-Ocean Dynamics Experiment

a. Cross-strait equation of motion

Consider a strait of width L whose sides are parallel to the x-direction in a Cartesian coordinate system. The z-direction is positive upwards and the y coordinate is directed across the strait. The dynamic equation for acceleration across the strait is

$$\frac{\partial v}{\partial t} + u\frac{\theta u}{\partial x} + v\frac{\partial v}{\partial y} + w\frac{\partial v}{\partial z} = -fu - \frac{1}{\rho}\frac{\partial p}{\partial y} + \frac{1}{\rho}\frac{\partial \tau_y}{\partial z} + F_y \tag{1}$$

where u and v are the upstrait (x-direction) and cross-strait (y-direction) components of the current respectively, $f=2\Omega\sin\Theta$ is the Coriolis parameter, $\Omega$ is the earth's angular speed and $\theta$ is the latitude, $\rho$ is the density, p is the pressure, $T_y$ is the y-component of the shearing stress and F is the y-component of the body forces other than those due to the earth's rotation. Vertical motions are taken to be zero.

Averaging equation (1) across the strait yields

$$\frac{\partial}{\partial t}(\bar{v}) + \overline{u\frac{\partial v}{\partial x}} = -f\bar{u} - \frac{1}{L}\int \frac{1}{\rho}\,dp\,\Big|_{x,z} + \overline{\frac{1}{\rho}\frac{\partial \tau_y}{\partial z}} + \bar{F}_y \tag{2}$$

in which the bar represents the cross-strait average (i.e. $\bar{A}=1/L\int_{-L/2}^{L/2} A\,dy$ ) and $\Delta$ represents the difference of a quantity across the strait (i.e. $\Delta A = A(L_2) - A(-L_2)$). The specific volume, $\alpha = 1/\rho$ can be represented as $\bar{\alpha} + \alpha'$ where $\alpha$ is the cross-strait mean and $\alpha'$ are variations about this mean. Then the second term on the right side of equation (2) becomes

$$\frac{1}{L}\int \frac{1}{\rho}\,dp\,\Big|_{x,z} = \frac{\bar{\alpha}}{L}\Delta p + \frac{1}{L}\int \alpha' dp\,\Big|_{x,z} \tag{3}$$

As variations in $\alpha$ across the strait are less than 0.1% of the mean specific volume (Herlinveaux and Tully, 1961), the second term on the right in equation (3) is negligible. Now rewriting equation (2) as a cross-strait pressure difference, we obtain

$$\Delta p = \underset{\mathrm{I}}{-\frac{fL}{\alpha}\bar{u}} + \underset{\mathrm{II}}{\frac{LF_y}{\alpha}} + \underset{\mathrm{III}}{L\overline{\left(\frac{\partial \tau_y}{\partial z}\right)}} \underset{\mathrm{IV}}{- \frac{L}{\alpha}\frac{\partial}{\partial t}(\bar{v})} \underset{\mathrm{V}}{- \frac{L}{\alpha}\overline{u\frac{\partial v}{\partial x}}} \tag{4}$$

For this study, pressure differences resulting from the Coriolis effect (Term II) will be regarded as the 'signal' while all other factors which cause pressure differences, including Terms III to VI, will be considered 'noise'. The problem, then is to determine whether the signal to noise ratio is sufficiently large to allow one to accurately compute the mean up-strait current from the cross-strait pressure differences.

b. Estimation of cross-strait equation of motion terms

In the discussion that follows, the contribution of the various terms to the cross-strait pressure difference will be estimated for Juan de Fuca Strait. This strait has the advantage of being wide (about 22 km) and exhibiting a fairly regular bathymetry. Measurements by Huggett (1976) and by Herlinveaux and Tully (1961) provide data for the estimates to follow.

In Juan de Fuca Strait, the semi-diurnal and diurnal tidal currents are responsible for most of the observed flow variability. The residual currents (defined as the remaining current after periodic motions having frequencies larger than 0.8 cycles/day have been removed) are also important. Although the residual currents are smaller than the tidal currents, they indicate the net movement of water and pollutants over a tidal cycle.

Term II of equation (4) will result in a range in $\Delta p$ of 23 millibars (mb) for a typical range in the tidal currents of 100 cm/sec taking $L = 22$ km, $f = 1.11 \times 10^{-4}$ $sec^{-1}$ and $\alpha = 0.976$ $cm^3/g$. A residual current with a range of 20 cm/sec will result in a range of $\Delta p$ of 5 mb. These two pressure differences of 23 mb and 5 mb for the tidal and residual currents, respectively, will be used as standards in comparing pressure differences due to other effects.

Term III is negligible in comparison with Term II. The largest body force would be the self-tide which, according to Cartwright and Crease (1963), has a maximum value at times of an eclipse of $1.22 \times 10^{-7}g$ where g is the local acceleration due to gravity. This would result in a pressure difference of only 0.27 mb. When averaged over many tidal cycles, the effect is much smaller.

Term IV reflects pressure differences resulting from vertical gradients in the cross-strait shearing stress. The shearing stress at the surfaces is $\tau_a$ due to the wind while at the bottom the stress is $\tau_b$ due to friction. Because this term is difficult to deal with analytically, we will make a rough estimate of this effect averaged over a vertical column of depth, h; viz.,

$$\frac{1}{h} \int_{L/2}^{-L/2} \int_{-h}^{o} \left(\frac{\partial \tau}{\partial z}\, dz\right) dy = \frac{1}{h} \int_{-L/2}^{+L/2} [\tau_a - \tau_b] dy \qquad (5)$$

Now we assume the bottom friction to be small and ignore variations in the density. Furthermore, the effect of the wind is assumed to be confined to the upper well mixed layer with a typical depth of 10 m (Fissel and Huggett, 1976). The y-component of the wind stress is (Roll, 1965),

$$(\tau_a)_y = \rho_a C_D V\ (U^2 + V^2)^{\frac{1}{2}} \tag{6}$$

where $\rho_a = 1.25 \times 10^{-3}$ gm/cm$^3$ is the air density and U and V are the up-strait and cross-strait components of the wind and $C_D$ is the drag coefficient. Using the maximum values of winds observed during the 1975 observations, U = 15 m/sec and V = 5 m/sec and taking $C_D = 1.5 \times 10^{-3}$ (Pond, et al, 1975) yields a wind stress of 0.86 dynes/cm$^2$. Assuming the winds to be constant across the strait together with assumptions made above, reduces equation (5) to

$$\frac{\tau_a \cdot L}{h} = \frac{19}{h} \text{ (mb), h in m.}$$

If we associate h with the depth of the upper mixed layer depth of 10 m (Fissel and Huggett, 1976) the resulting pressure difference is 1.9 mb. Taking h to be 200 m, the depth of the strait, the pressure difference is only 0.1 mb. These values represent the maximum pressure difference due to Term IV. Because the wind tends to blow parallel to the strait, the cross-strait wind component is generally much smaller. Using the average values of the wind components measured by Fissel and Huggett (1976) at Sheringham Point of U=5 m/sec and V=2 m/sec yields a wind stress of 0.20 dynes/cm$^2$ and a corresponding pressure difference of 0.4 mb (for h = 10 m).

It should be noted that the location of the pressure gauges is important in determining the size of this effect. On a wide shallow shelf, the simple estimate described above is less likely to be applicable because of the increased bottom friction. A more developed analysis such as that of Crepon (1970) must be used. Even allowing for the crude way in which Term IV was evaluated, it seems clear that for the case of tidal currents, the effect of Term IV can be neglected. However, for the smaller residual currents, the wind effect may be important.

Term V, representing contributions from the rate of change of cross-strait currents, has the potential to produce relatively large pressure differences over the diurnal and semi-

diurnal tidal cycle periods. The ratio of the standard deviations of the cross-strait current to that of the up-strait current is about 0.25 (Fissel and Huggett, 1976). For a sinusoidally varying cross-strait current with a range of 25 cm/sec and period of 12 hours, Term V would amount to 8 mb. In actual practice, the situation is not as bad as this result suggests because the cross-strait currents are not well correlated at different positions across the strait as shown in Figure 5b of Fissel and Huggett (1976).

For the case of residual currents, Term V is relatively small since the term decreases in proportion to the time scale. For example a cross-strait current with a range of 0.25 of the up-strait residual = 5 cm/sec and a period of 5 days will result in a pressure difference of only 0.16 mb.

Term VI can be rewritten as

$$\frac{L}{\alpha}\,\overline{u\,\frac{\partial v}{\partial x}} = \frac{L}{\alpha}\left(\overline{v\,\frac{\partial u}{\partial x}} - \overline{(u^2 + v^2)\,\frac{\partial \theta}{\partial x}}\right) \qquad (7)$$

following Cartwright and Crease (1963) where $v = u \tan \Theta$. By applying the continuity equation $v(\partial u/\partial x)$ becomes $-v(\partial v/\partial y) = -(1/2)(\partial v^2/\partial y)$ which is the same as Term II previously shown to be negligible. The remaining part of equation (7) represents the centripetal acceleration. To determine $\partial\Theta/\partial x$ one would require simultaneous current measurements at many points up and down the strait. In the vicinity of Sheringham Point, where the measurements were made, we estimate that the strait has a curvature of 1 degree/km. This estimate was arrived at by studying the Canadian Hydrographic Chart #3607. For a typical tidal current of 50 cm/sec amplitude, the resulting pressure difference would be 1 mb while a maximum tidal current of amplitude 100 cm/sec would result in a pressure of 3.9 mb. These figures suggest that Term VI is large enough that it should be taken into account. One method would be to make simultaneous measurements of pressure differences and the up-strait current u and then fit $\Delta p$ to a function $au + bu^2$. The constants a and b would then be used to compute the current, where the $bu^2$ term is included to account for Term VI.

For the computation of the residual current, Term VI is also important in that it has a mean non-zero value over a tidal cycle. For a typical tidal current with a range of 50 cm/sec, the averaged pressure difference is changed by 0.5 mb while for a large tidal current having a range of 100 cm/sec the change to the pressure difference is 2.0 mb. From these results, it is clear that this effect is of some importance and should be considered when choosing a location for measurements of cross-strait pressure difference. A position where the curvature of the strait (and presumably the curvature of the flow) is minimized would limit the size of this effect.

c. Other Causes of Pressure Differences

There are other factors which could also produce pressure differences across the strait but which have not been considered above. One factor would be a difference in the air pressure on either side of the strait. However, the characteristic size of the atmospheric pressure disturbances is large compared to width of the strait and such differences would be small (typically less than 0.5 mb over a distance of 20 km). As well, the ocean responds isostatically to some extent to atmospheric pressure (Brown et al, 1975; Lisitzin, 1975) so the effect on bottom pressures is reduced.

Variations in the density across the strait may also result in pressure changes. Aside from the coupling of the density field to bottom pressures for baroclinic currents, water of different densities may result from advection, river runoff or the atmospheric influences of precipitation and evaporation. However, the sea level responds isostatically to these factors and there would be little effect on the bottom pressure. It should be noted that if the sea level slope rather than bottom pressure differences were used for the computation of currents, differences in density across the strait would be more of a problem. The effect of advection by tidal or other types of currents of water of different density resulting in cross-strait density differences is not clear and requires further study.

Waves incident on a sloping beach cause changes in the mean sea level and bottom pressure due to gradients in the radiation stress (Longuet-Higgins and Stewart, 1964). On the seaward side of the breaker line the mean sea level is decreased while the sea level increases shoreward of the breakers. For deep water waves (wavenumber x depth > 1), the set down in sea level outside the breaker zone ($\Delta\eta$) is:

$$\Delta\eta = -\frac{a^2}{4h} \tag{8}$$

where a is the amplitude of the waves and h is water depth. Taking a = 1 metre at a depth of 20 m, $\Delta\eta$ = 1.2 cm corresponding to a change in bottom pressure 1.2 mb. In Juan de Fuca Strait, the wave field should be similar on either side of the strait so that differences in bottom pressure across the strait will be a small fraction of the 1.2 mb estimated change in pressure.

When measuring pressures, an increase in the pressure results from the flow around the sensor. This dynamic pressure head varies as

$$\Delta p = \frac{1}{2}\rho |v|^2 \tag{9}$$

For a current of 100 cm/sec, the pressure will be increased by 5.1 mb. A difference in the currents or exposure to the currents from one side of the strait to the other would produce a pressure difference. In the observations made for this study, the pressure gauges were mounted in a concrete block anchor so that the pressure sensor was well within the boundary layer of the flow and the dynamic pressure head would be small.

d. Down-strait Equation of Motion

Using the coordinate system and symbols defined for equation (1) the down-strait equation of motion after neglecting vertical motions is

$$\frac{\partial u}{\partial t} + u\,\frac{\partial u}{\partial x} + v\,\frac{\partial u}{\partial y} = fv - \frac{1}{\rho}\frac{\partial p}{\partial x} + \frac{1}{\rho}\frac{\partial \tau_x}{\partial z} + F_x \tag{10}$$

The Coriolis force has a relatively smaller effect because the cross-strait currents are smaller than down-strait currents and because other terms, notably the time acceleration, field acceleration and shearing stress terms are larger than their equivalent terms in Equation (1). For the strong tidal currents, the two largest terms are likely to be the time acceleration and pressure gradient terms. If a balance between these is assumed, a wave of semi-diurnal frequency and amplitude 50 cm/sec would produce a pressure difference (peak to peak) of 1.5 x D (mb) where D is the distance between the two observation points in kilometres. This is about the same size as the cross-strait $\Delta p$ due to the Coriolis effect discussed above when D is near the width of the strait.

For residual currents, several terms are potentially large, but difficult to estimate from existing data. The down-strait wind stress will be large but the size of its down-strait gradient is not known. Because of the large down-strait current speeds, bottom friction may be important and the field acceleration $u(\partial u/\partial x)$ could be large. Bowden (1956) has shown that the pressure difference through the Straits of Dover can be related to the field acceleration term $u(\partial u/\partial x)$ and the local wind stress with reasonable success. Using Juan de Fuca data, his method predicts a pressure difference of less than 2 mb over a down-strait distance of 20 km for a residual current of 20 cm/sec, smaller by a factor

of 2 to 3 than the estimated cross-strait gradient discussed above for residual currents.

e. Summary

Many factors which could contribute to a cross-strait pressure difference have been discussed and the estimated sizes of these pressure differences are summarized in Table 1, for both the diurnal and semi-diurnal tidal currents and the residual current.

For tidal currents, two terms have the potential to be 10% or more of the pressure difference due to the Coriolis force. The accelerations of cross-strait currents could produce a $\Delta p$ as large as 8 mb, but because of the low correlation observed among the cross-strait currents, the actual $\Delta p$ is thought to be less than this. The centripetal acceleration may result in a $\Delta p$ of up to 4 mb. Corrections for the latter effect could be rather easily incorporated into an on-line system while the former effect would be difficult to account for and may be the limiting factor for the accuracy of the method.

For residual currents, the pressure differences due to wind stress and centripetal acceleration could be 10% or larger than the $\Delta p$ due to the Coriolis force. In an on-line system of measuring $\Delta p$ to determine the current, the winds could be incorporated into the reporting system and corrections then could be applied. However, this would require a better understanding of the relationship between winds and pressure changes and a better network of wind observations than exists at present.

## 4. Experiment

As part of this study, an experiment was carried out from late May to mid-July 1975. A detailed description of the experimental procedures together with a summary of the data obtained is presented in Fissel and Huggett (1976).

### a. Objectives

(1) to determine the correlation between pressure differences across and along the strait and currents; and hence to determine whether pressure differences could be used as a practical measure of the currents;

(2) to determine contributions to pressure changes from other physical quantities (winds, air pressure, and water temperature and salinity);

(3) to provide data which would add to our overall knowledge of the physical oceanography of Juan de Fuca Strait.

### b. Site

Juan de Fuca Strait had several advantages for this experiment. From previous studies of the currents and general oceanography of the strait, (Herlinveaux and Tully, 1961; Crean and Ages, 1968; and Huggett, 1976) we could anticipate the conditions which would be encountered. In particular, the strait was wide and the tidal flows relatively strong so that the pressure differences resulting from the currents would be large (see Section 3). The study was initiated with the view of determining currents using shore measurements only. Such knowledge could prove effective in predicting the movements of an oil spill, resulting from a tanker mishap.

The site chosen for the field work was a cross-section between Pillar Point on the U.S. side, and Sheringham Point on the Canadian side. Here the bathymetry of the strait is quite regular. The region is located equidistant from the coastal oceanic zone and the inshore water directly affected by river runoff. Juan de Fuca Strait has the added advantage of being close to Victoria where ships and personnel are based.

### c. Period of Observations

The instruments were installed during the week of May 26 to 31 when the charter vessel MV Pandora II was available. Although it would have been desirable to continue the observations over a longer period, some of the personnel and instruments were required elsewhere and therefore the instruments were recovered from July 10 to 15, 1975, approximately 7 weeks after the installation.

d. Observational Program

For this experiment, eight Aanderaa self recording gauges were used to measure bottom pressures. These instruments, which use quartz crystal transducers, are claimed by the manufacturer to be accurate to within ±0.01% of full scale range. Of the eight gauges, three had a range of 31 decibars (dbars) and the remaining five had a range of 280 dbars. Thus the accuracy of the gauges expected is ±0.31 millibars (mb) and ±2.8 mb respectively. It should be noted that the calibration procedures used before and after the experiment are estimated to be accurate to only ±2 mb for absolute pressures.

Seven of the bottom pressure gauges were located in the vicinity of Pillar Point and Sheringham Point at the depths of either 20 m or 120 m so that near surface and deeper pressure differences could be studied. The four gauges at 20 m depth form a rectangle with a cross-strait separation of 22 km and an up-strait separation of 9 km (see Figure 1). Three of the four gauges (TG1, TG2 and TG3) had the more accurate 31 dbar range. The three gauges at 120 m depth were installed in the anchor weight used for current meter moorings and each was located near one of the gauges at 20 m depth. In order to measure larger scale pressure differences along the strait a gauge was placed 35 km down the strait in the entrance to Port San Juan inlet at a depth of 20 m.

The experiment was limited to six moorings for current meters. One cross-sectional array of Aanderaa current meters (see Figure 2) was established between bottom pressure gauges TG1 and TG3 on a line running at approximately 25 degrees to the perpendicular of the strait. This orientation was chosen in order to have both ends of the cross-section bounded by nearly vertical walls rather than a shallow shelf region (as is found at stations TG2 and TG4) where the effects of wind and shelf currents would result in amplified bottom pressure variations. In the cross-sectional array, five current meters were located at approximately 20 m depth and three were located at 120 m depth. One additional mooring (Station 137) was established near Station TG2 in order to compare the currents in an area situated near a broad shelf with those measured off the sharply rising boundary found at Station 130 near Sheringham Point.

The currents were sampled every 15 minutes and the bottom pressures were sampled every 30 minutes. While the speed recorded by the current meter is a 15 minute average, the direction is an instantaneous value sampled at recording time. Since the bottom pressure measurements were 15 minute averages, surface wave effects were eliminated.

Continuous records of water temperatures were obtained from thermistors on each of the current meters while at one station (136) the current meter was also equipped with a conductivity sensor. In addition, most of the current meters were equipped with

pressure sensors, so that the depths of the instruments could be computed.

For two periods during the experiment, the vertical profiles of temperature and salinity were measured using a Guildline STD recorder. These measurements were taken at Stations S1, S2 S3, and S4 located on the cross-sectional line of current meters (shown in Figure 1) when the current meters and bottom pressure gauges were installed (May 26 to May 28, 1975) and over a 25 hour tidal cycle on June 14 to June 15.

Wind and air pressure in the experiment area were monitored by an anemometer and barograph borrowed from the Atmospheric Environment Service, Vancouver. The anemometer was installed at Slip Point and the barograph was located at Sheringham Point for the duration of the experiment. Records of wind measurements taken by the Ministry of Transport at Sheringham Point were also obtained.

e. Observations

For a description of the observations and data processing, refer to Fissel and Huggett (1976). Time series plots are presented together with preliminary analyses such as spectra and progressive vector diagrams. With the exception of the deeper current meter at Station 133, all instruments worked well. The rotor on the current meter at 120 m depth, Station 133, broke off while the instrument was being deployed and no current measurements were obtained.

The pressure measurements from the current meters indicate that the moorings at locations near the centre of the strait were tilted as much as 39° by the drag of the strong spring currents. As discussed by Fissel and Huggett (1976), the largest error introduced by this mooring motion will be the difference in the currents between the nominal depth (no mooring tilt) and the actual depth. Comparisons between the deeper and shallower current meters suggest that the shear in the currents is relatively small and at those times when large tidal currents are running and therefore the error introduced in the currents is limited. For the 24 hour period of July 10, 1975 (the day on which the strongest currents were recorded), the largest estimated error for any 15 minute reading of the current at Station 135 - 20 m depth, is 18 cm/sec. The estimated error in the daily mean of the up-strait current is only 0.9 cm/sec, thus the effect of mooring tilt on the residual currents appears to be rather limited as well.

## 5. Computed Quantities

### a. Up-strait current averaged over the width of the strait

After applying calibration constants to the raw speed and direction data, the up-strait (positive along a direction of 112° true) and cross-strait (positive along a direction of 22° true) components were computed for each current meter. The up-strait current averaged over the width of the strait at the nominal 20 m depth ($U_{20}$) was computed as the mean of each set of simultaneous up-strait currents from Stations 130, 131, 133, 135 and 136 (Figure 3). In computing these means, weights of 1.003 (Station 130), 1.102 (131), 1.069 (133), 0.954 (135) and 0.872 (136) were applied to reflect the segment of the strait each current meter is assumed to represent. Simultaneous measurements from all five current meter stations are available at 15 minute intervals from 1930 May 27 to 1130 July 14, with a gap from 0900 June 30 to 0030 July 1 when the 20 m current meter at Station 133 failed. All times are Pacific Standard. The up-strait current averaged over the width of strait at the nominal depth of 120 m($U_{120}$)was computed as the unweighted mean of each set of simultaneous up-strait currents measured by the deeper current meters at Stations 131 and 135. The $U_{120}$ time series begins at 1245 May 27 and runs to 1145 July 14 with no gaps (see Figure 4).

### b. Pressure differences

From the 30 minute readings of bottom pressures, differences of pressure were computed for selected pairs of stations as shown in Figures 3, 4 and 5. Time series of pressure differences will be referred to as $P_n$-$P_m$ where the subscripts n and m indicate the station number.

In this study, pressures and pressure differences are represented as the changes about the mean value of the entire record, i.e. the mean is subtracted for each pressure record. The bottom pressure gauges were not leveled with respect to bench marks because of the large amount of time such a procedure would consume and because the Canadian and American sides of Juan de Fuca Strait have no common datum level. Since the pressure differences used in this study are relative it will only be possible to determine <u>changes</u> in the current and not the absolute current. The problem here is that the gauge depth relative to a geopotential level is difficult to obtain.

In computing the cross-strait pressure differences, the bottom pressures at the northern stations are subtracted from those of the southern stations, so that a positive pressure difference resulting from the Coriolis force will correspond to a positive up-strait current. The up-strait pressure differences are computed as the eastern station pressure less the western station pressure.

The pressure measured at stations with a nominal depth of 20 m had few errors and these were replaced by means of linear interpolation (Fissel and Huggett, 1976). The bottom pressure gauge at Station TG6 malfunctioned between 0030 June 30 and 1600 July 2 and pressure differences are not computed for this period. In addition, Figure 4 indicates that between June 7 and June 10, the mean pressure at this station shifted by about 15 mb (equivalent to about 15 cm of water level). Because no similar changes were found in any other bottom pressure records, this feature is regarded as erroneous, possibly due to a change in the characteristics of the pressure transducers or settling of the pressure gauges on the bottom of the strait.

### c. Digital Filtering Methods

To remove the strong diurnal and semi-diurnal tidal activity, digital filters were applied to the data. This filtering was accomplished by computing moving averages of the data, one or more times. Following Godin (1972), the operation of addition over n terms is represented as A(n). Thus a single pass 25 point running mean filter is represented as A(25)/25.

For the purposes of linear regression analysis, described below, a three pass moving average filter was applied. The filter used was A(96)·A(96)·A(97)/96·96·97 for the 15 minute samples of the $U_{20}$ and $U_{120}$ signals which has amplitude responses of 0.71, 0.5 and 0.003 at periods of 3.8, 2.7 and 1.0 days respectively. For the $\Delta p$ time series, with 30 minute samples, the filter employed was A(48)·A(48)·A(49)/48·48·49, having a virtually identical response.

## 6. Analysis Methods

To study the coupling between pressure differences and currents both linear regression and spectral analysis techniques are used. These two methods complement one another since both provide a measure of the relatedness of different quantities. Spectral analysis breaks down this information for various equally spaced frequencies while linear regression analysis gives a measure of the overall coupling. The linear regression analysis was extended to work with more than two variables while the spectral analysis method was carried out on two quantities only.

### a. Spectral Analysis

The spectral analysis methods are based on those of Jenkins and Watts (1968). Programs developed and described by Fissel (1975) were modified to accept other input formats. The spectral analysis computations were made using the IBM 370/168 computer of the University of British Columbia. After the calibrations were applied to the data, and all obvious errors removed, the mean and the linear trend were removed from each time series. For a time series consisting of N equally spaced samples, X(j), j=0, 1,

2, ...N-1, the Fourier sine and cosine coefficients are defined as

$$a(f) = \left| \sum_{j=o}^{N-1} x(j)\cos(2\pi jf/N) \right| /N \tag{11}$$

$$b(f) = \left| \sum_{j=o}^{N-1} x(j)\sin(2\pi jf/N) \right| /N \tag{12}$$

These coefficients, computed by means of a Fast Fourier Transform algorithm devised by Singleton (1961), are used to compute various spectral values.

The auto or power spectral density represents the contribution to the variance per unit frequency. The spectral density is computed as

$$\phi_{x\alpha}(f) = [a^2(f) + b^2(f)]/2\Delta f \tag{13}$$

where $\Delta f$ is the reciprocal of the record length. (It has been traditional in discussing spectral results to refer to power spectral values as 'energy densities' and the contribution to the variance ($\phi df$) as the spectral energy.)

For two time series X(j), Y(j), j=0, 1, 2, ...N-1 one can define the co-spectrum $\phi_{xy}$ (coincidence spectrum) representing contributions to the co-product $\overline{X \cdot Y}$, per unit frequency and the quadrature spectrum $Q_{xy}$ representing contributions to the co-product of XY* per unit frequency where the * indicates that the Y time series is lagged 90° in phase at all frequencies. The co- and quad-spectral values are computed from the Fourier coefficients as

$$\phi_{xy} = (a_x a_y + b_x b_y)/(2\Delta f) \tag{14}$$

$$Q_{xy} = (a_x b_y - a_y b_x)/(2\Delta f) \tag{15}$$

A study of the relationship between two signals is made easier when some non-dimensional quantities are examined. The coherence $\gamma_{xy}$ is defined as

$$\gamma_{xy} = \frac{(\phi^2_{xy} + Q_{xy}{}^2)^{\frac{1}{2}}}{(\phi_{xx} \cdot \phi_{yy})^{\frac{1}{2}}} \tag{16}$$

This quantity ranges from 0 to 1 and represents the fraction of the amplitude of each signal that matches a similar oscillation in the other signal regardless of the phase difference between the two oscillations. The phase difference $F_{xy}$ between the two signals at each frequency can be computed by

$$F_{xy} = \arctan (- Q_{xy}/\phi_{xy}) \tag{17}$$

This definition is chosen so that the phase is positive when signal Y leads signal X.

In order to reduce the random error associated with each raw spectral estimate (Bendat and Piersol, 1971), the spectral estimates are smoothed by averaging groups of adjacent spectral estimates (auto-, co- and quad-spectra). In this study, each spectral value presented is the average of 5 adjacent raw spectral estimates and hence has 10 degrees of freedom. When discussing the coherence between two quantities, some criteria must be used if coherence between them is statistically significant. Here we take the significance level to be that value of coherence below which the true random coherence will fall with 90% probability. This value is 0.66 for 10 degrees of freedom in the coherence estimate (Groves and Hannan, 1968). The corresponding 95% significance level is 0.73.

b. Linear Regression

The linear regression analysis follows the method of Panofsky and Brier (1958). A program was written to compute the plane of regression between three time series $X_1$, $X_2$, and $X_3$ according to

$$X_1 = a + bX_2 + cX_3 \tag{18}$$

where a, b and c are the regression coefficients. The correlation coefficients relating each pair of time series were computed as well as the linear coefficient of multiple correlation. All programming and computations were carried out on a Hewlett-Packard Series 2100 computer.

7. Results: Relation of pressure differences to currents for full signal.

The relationship between pressure differences and currents is examined first by means of linear regression analysis. Then, using the methods of cross-spectral analysis, the relationship is studied in detail at the important diurnal and semi-diurnal tidal constituents.

a. Linear regression analysis for full signal

For the cross-strait pressure differences, the regression coefficients were computed between $\Delta p$, $\bar{U}_{20}$ and $(\bar{U}_{20})^2$ according to

$$\Delta p(t) = a + b\ \bar{U}_{20}(t-T) + c\ (\bar{U}_{20})^2(t-T) \tag{19}$$

where t is the actual time and T is the lag time. The coefficient b is a measure of the response of $\Delta p$ to the currents due to the Coriolis force and the coefficient c measures the effect of centripetal accelerations as discussed in Section 3. For some of the regressions on $\Delta p$, it was found that lagging $\bar{U}_{20}(t)$ resulted in better correlation. The coefficients, lag times, simple correlation coefficients and the multiple correlation coefficient together with the record length are summarized in Table 2. Table 2 also contains the standard deviation and maximum value of the 'error' in the fitted current, $\bar{U}'$

$$\bar{U}' = \bar{U}_{20} - (1/b)\Delta p + (c/b) \cdot (\bar{U}_{20})^2 + a/b \tag{20}$$

The time series $\bar{U}'$ is plotted in Figure 6.

A comparison of the measured and theoretical values of the coefficients b and c indicates good agreement. The theoretical value of b is $fL/\alpha$ where $f=1.11 \times 10^{-4}$ sec $^{-1}$ is the Coriolis parameter, $\alpha=0.976$ cm$^3$/g is the mean specific volume and L is the separation between the two stations. The theoretical and experimental values of b are compared in Table 3. In view of the uncertainties in the station position (±0.5 km), the current measurements (±2 cm/sec) and the bottom pressure measurements (±0.3 mb at Stations 1, 2 and 3 and ±2.8 mb at Stations 4 to 8), the agreement is as good as can be expected.

The theoretical value of c as was argued in Section 3, should be about $3.9 \times 10^{-4}$ while the experimental values of this relatively small effect range from 2.8 to $6.3 \times 10^{-4}$. The difference may be a result of a difference in dynamic pressure on the pressure sensors as discussed in Section 3.

A comparison of the standard deviations of the averaged current $\bar{U}_{20}$ and the error current $\bar{U}'$, indicates that the error is typically about one-fifth of the actual current. To put this in perspective, a harmonic analysis was made for each current record. The errors between the predicted and actual currents for individual stations were approximately the same size as the error $\bar{U}'$. For example, at 20 m depth, the standard deviation of the up-strait harmonic analysis prediction error was 10.6 cm/sec at Station 131 and 7.6 cm/sec at Station 136 compared to the standard of the error current of 8.6 to 11.5 cm/sec.

The physical causes of the error current $\bar{U}'$ are not clear. Theory suggests that the local rate of change of cross-strait currents $\bar{V}$ may be important. To examine this effect, the cross-strait current was computed as an unweighted average of the cross-strait components of the current at Stations 130, 131, 133, 135 and 136 for 20 m depth. The corresponding pressure difference $(L \cdot \Delta\bar{V})/(\alpha \cdot \Delta t)$ was then computed. This quantity is plotted in Figure 7 together with $\Delta p'(4-1)=b \cdot \bar{U}'$, the error in the pressure differences for a 15 day period. While the size of the pressure differences due to changes in $\bar{V}$ is large enough to account for $\Delta p'$ the two quantities show little correlation, as the latter is dominated by semi-diurnal variations while the former has more activity at higher frequencies. However, the high frequency variations in $\Delta p'$, though relatively small, could be due to pressure differences resulting from changes in cross-strait currents, perhaps on a more local scale.

Of course, $\Delta p'$ and $\bar{U}'$ also reflect errors in the measurements. In particular, the tilting of the moorings discussed in Section 4, could result in errors of up to 18 cm/sec in the currents sampled at 15 minute intervals, equivalent to errors in $\Delta p$ of 4 mb.

A final possibility is that changes in the density of the water column due to advection of different water masses or local heating and cooling may change the bottom pressure. Although the sea level should adjust to compensate for such changes and an isostatic balance be restored, such an adjustment will not be instantaneous. The time scale and size of this pressure change is not clear and requires further investigation.

For the cross-strait pressure differences at 120 m depth, the results are similar to the cross-strait $\Delta p$ correlation at 20 m (see Table 4). The error in the current predicted from the linear

regression, plotted in Figure 8, has about the same ratio to the actual up-strait current as was found for the 20 m case. However, the pressure signals at 120 m depth had more errors which are seen as spikes and a shift in the mean of $\bar{U}'$.

From linear regression analyses, there is less correlation between up-strait pressure gradients with the up-strait currents than between cross-strait pressure gradient and these currents. For the pressure difference between stations 1 and 2, $\Delta p(1-2)$ and $\bar{U}_{20}$, the maximum correlation coefficient is 0.866 when the current is lagged 3.5 hours behind $\Delta p$. While the lag time corresponds to a phase shift of about 90° for a semi-diurnal tide propagating as a wave as expected, the error in the fitted current to actual current has a standard deviation of 23.5 cm/sec, about twice the size of the error current determined when using cross-strait pressure differences. The lower correlation is a result of the difference in the response of currents to pressure differences at the diurnal and semi-diurnal frequencies as discussed in the following section.

b. <u>Cross-spectral analysis of the relation between pressure differences and currents for tidal frequencies</u>

The use of cross-spectral analysis methods enables us to study the coupling of the various measured pressure differences to the mean up-strait current at different frequencies. In this section, we do not consider residual currents (frequency >0.8 cpd) which will be discussed in some detail later.

The activity of both the mean current and pressure difference signals is almost entirely concentrated in a few frequency bands. To illustrate this, the power spectra of $\bar{U}_{20}$ and $\Delta p(3-2)$ together with the phase and coherence are plotted in Figure 9. In those bands containing the important diurnal and semi-diurnal constituents, the phase difference is small and the coherence is close to one. Because of the concentration of energy at a few frequencies, the discussion can be restricted to five frequency bands: two bands at 0.88 and 0.99 cpd containing the diurnal tidal constituents, two bands at 1.92 and 2.03 cpd containing the semi-diurnal tidal constituents and the band at 2.95 cpd containing the terdiurnal constituents.

In examining the relation between pressure differences and mean up-strait currents, it is useful to define the spectral response coefficient

$$R = (\phi_{\Delta p}/\phi_{\bar{U}})^{\frac{1}{2}} \cdot \gamma \qquad (21)$$

as a measure of the response of the pressure difference to the mean

up-strait current at each frequency where $\phi$ represents power spectral estimates. This coefficient, along with coherence and phase are plotted in Figure 10. For $\Delta p(3-1)$, $\Delta p(4-1)$ and $\Delta p(4-2)$, the response coefficient is quite constant ranging from 0.20 to 0.26 at the diurnal and semi-diurnal frequencies. However, for $\Delta p(3-2)$ the response coefficient is noticeably lower at the semi-diurnal frequencies (0.17 versus 0.24 at the diurnal frequency) which is in agreement with the lower total correlation between $\Delta p(3-2)$ and $\bar{U}_{20}$ than for other pressure differences as noted earlier. At the terdiurnal frequency, the response coefficient is much more variable and the pressure differences tend to be out of phase with the currents. The lower response coefficient and coherences here may be simply a result of the relatively low level of activity at this frequency. Given the uncertainties of the data, the up-strait current appears to be equally effective in producing cross-strait pressure differences at the diurnal and semi-diurnal frequencies. At the terdiurnal frequency, the pressure differences appear lower than expected but the amount of activity is small at this frequency which may account for the low value.

The spectral response coefficient has considerably larger variations with frequency when up-strait rather than cross-strait pressure differences are used, as shown in Figure 11. This is not unexpected since a wave propagating along the strait will result in a spatial difference which varies according to the wave length frequency of the wave. For a wave of $M_2$ tidal period, the pressure differences will be almost twice as large as the pressure differences at the $K_1$ tidal period due to the difference in period. Indeed, the ratio between the spectral response coefficient at the semi-diurnal and diurnal frequencies is approximately 2.

The variation in the size of the down-strait pressure difference with frequency accounts for the lower correlation between the current and the up-strait $\Delta p$'s in comparison with cross-strait $\Delta p$'s as discussed in the previous section. To illustrate this, consider a current which is the sum of two sinusoidally varying currents, $u_1$ and $u_2$, with frequencies $\omega_1$ and $\omega_2$. The pressure difference $\Delta p$ is proportional to $\omega_1 u_1 + \omega_2 u_2$ while the current is $u_1$ and $u_2$. The uneven weighting of the currents as seen by the pressure differences reduces the correlation.

## 8. Description of Residual Currents

Despite their small speed in comparison to the diurnal and semi-diurnal tidal currents, residual currents are important because they are indicative of the net motion of a water parcel over one or more tidal cycles. For our purposes, we define the residual current as that part of the current remaining after variations with frequencies above 0.8 cycles per day (cpd) have been removed. In this section, the residual currents are computed and the cross-strait variations are described.

Chang (1976) has shown that the residual currents in the

Strait of Georgia vary considerably with the position across the strait. Large variations in the residual currents with the cross-strait position are of importance in two different ways to the study of the relation between the instantaneous current and pressure differences. First, if such large variations occur it becomes more difficult to accurately determine the current, averaged over the width of the strait, since more current meters are required to resolve the cross-strait variations. Second, the method of using pressure differences to determine the residual current would be less useful, because in many practical applications the current at a particular point is wanted rather than the current average over the width of the strait.

The residual currents measured at a nominal depth of 20 m are displayed in Figure 12. The currents were computed by applying the three pass moving average digital filter A(96)A(96)A(97)/96•96•97 to the components sampled each 15 minutes. The currents are plotted as lines representing vectors with a line perpendicular to and upwards from the time axis representing a current vector flowing up-strait (112° true).

At all stations, fluctuations of 20 cm/sec or so are present, superimposed on the net outflow found in the near surface zone. From a visual inspection of the plots, it appears there is relatively little similarity among the fluctuations at different stations.

To study the residual currents in more detail, the power spectral densities were computed for each station from a common 45 day record beginning at 0000 May 29, 1975. Before computing the spectra, the diurnal and semi-diurnal tidal constituents of the currents were computed by means of harmonic analysis and then subtracted from the original currents to reduce the energy at these frequencies and thereby reduce sideband leakage to the lower frequencies. Then a single pass 25 hour moving average filter (Section 5) was applied to the data. The Fourier coefficients were computed, and after correction for filter losses, the power spectral density values were computed.

From the power spectra, the largest fluctuations are found in the up-strait currents of 20 m depth at frequencies less than 0.25 cpd (periods greater than 4 days). The spectral levels of the up-strait current component are generally larger by a factor of 5 than those of the cross-strait component. For both the up-strait and cross-strait components, the spectral levels are considerably lower at 120 m depth than at 20 m depth. Perhaps the most striking feature of the power spectra, is the extent to which the spectral energy is concentrated in the lowest frequency band centred at 0.067 cpd (15 days) and the next lowest frequency band centred at 0.18 cpd (5.6 days). For the up-strait current, these two bands account for approximately 80% of the total variance of the residual current.

Cross-spectral values between the residual current components

were computed. Since almost all of the spectral energy of the up-strait residual currents is in the two lowest bands, only cross-spectral results from these bands are presented (See Tables 5 to 8). The cross-spectral results are discussed as coherence and phase values; these are tabulated only if the coherence is greater than 0.66, the 90% significance level.

For variations in the up-strait residual currents resolved by the lowest frequency band (periods from 90 days to 8.2 days), only 3 of the 28 pairs are significant at the 90% level. The lack of horizontal coherence is quite remarkable. Two of these pairs consist of adjacent stations (137 with 130 and 133 with 135) while the third pair are stations on opposite sides of the strait. Somewhat higher levels of coherence are found in the vertical. The 120 m up-strait current at Station 135 is coherent at the 90% significance level with the 20 m currents at both Stations 135 and 133. However, the 120 m up-strait current at Station 131 is not coherent with the current of 20 m depth at that station, although it is coherent with the 20 m current at Stations 130 and 136. From the phase values in Table 6, the currents which are significantly coherent between 20 m and 120 m depth exhibit a tendency to be 180° out of phase.

In the second spectral band (periods from 8.2 to 4.3 days) the up-strait currents are somewhat more coherent with 14 of the 28 pairs being coherent at 90% level. Ten of the fifteen pairs between stations at 20 m depth are significantly coherent.

The cross-strait residual currents indicate generally low coherence as well. For the first band, 11 of the 28 pairs are coherent while in the second band, only 3 of the 28 pairs have significant coherence levels.

To summarize, the residual currents measured at various positions across the strait generally have low coherence with one another over the horizontal distances separating the stations, 4 km or more. To accurately determine the mean residual current flowing through the strait at one level, a smaller separation and therefore more stations are required.

## 9. Results: Relation of pressure differences to currents for residual currents

### a. Linear Regression

The diurnal and semi-diurnal tidal activity was removed from both the up-strait current averaged over the width of the strait and the pressure differences using three pass moving average filters (described in Section 5). Losses due to the filters between 0.25 and 0.8 cpd will be unimportant since there is little activity over this range of frequencies. The filtered residual currents and pressure differences are displayed in Figures 14, 15 and 16.

A visual examination of the filtered time series reveals that both the pressure differences along the strait at 20 m depth

and the pressure differences at 120 m depth are poorly related to the corresponding up-strait current. For the case of the pressure differences along the strait, the variations are very small aside from long term trends and a large, apparently erroneous shift of 10 mb in the pressure recorded at Station TG5. For the case of pressure differences at 120 m depth, a comparison with the residual up-strait current is made difficult by erroneous pressures measured at Station TG6, as discussed in Section 5, and an apparently erroneous shift in the pressure at Station TG8 on June 20. Even after allowing for these incorrect values, little correspondence is found between $\Delta p$ and $\bar{U}_{120}$, due to the insufficient accuracy of the gauges. At 120 m depth, the residual current varies by only 7.6 cm/sec over the entire record, which should result in a change to $\Delta p$ of 1.9 mb. However, since the pressure gauges at 120 m depth have an accuracy of only ±3 mb, the negative result for this depth is not surprising.

A visual examination of Figure 14 reveals a good correlation between the cross-strait pressure differences at 20 m depth and the residual up-strait current. Also, each $\Delta p$ exhibits, to varying degrees, a long term trend. Such a trend could be the result of a number of different physical causes. The instruments may be settling on the bottom at different rates but one would expect an exponentially decreasing pressure change to result from this effect. However, a fit to a linear trend appears to account adequately for the trend. A more likely physical cause would be zero drift of the pressure transducer. Test results conducted by the U.S. National Bureau of Standards (1976) on the digiquartz transducer show that the drift was nearly linear with time, ranging from 0.05 mb/week to 0.4 mb/week for the four transducers tested. Over a period of 6 weeks, the corresponding pressure changes would be 0.3 mb to 2.3 mb, which are comparable to the changes observed during the experiment. The long term trend was removed by computing the best fit in the least squares sense of the pressure differences to a linear function of time (t), e + ft where e and f are the regression coefficients determined. The results of the least squares fit are summarized in Table 9 and the pressure difference with the linear trend subtracted is plotted in Figure 17.

After removing the linear trend, the pressure differences were subjected to a regression analysis with the residual up-strait current. As in Section 7, the effect of the centrifugal force, proportional to the square of the current is also allowed for in the analysis. The centrifugal term is computed at the square of $\bar{U}_{20}$ after which the filter A(96)A(96)A(97)/96·96·97 is applied to the 15 minute values. This time series is displayed in Figure 18.

The results of the three way linear regression analysis are summarized in Table 10. While there are considerable variations in the regression coefficients for different pairs of bottom pressure stations, some general patterns emerge. The regression coefficient b, relating the response of $\Delta p$ to the current resulting from the Coriolis force, ranges from 0.14 to 0.20 mb/(cm/sec). These values

of b are lower than for the full signal analysis results and 18% to 42% lower than the theoretical values. Similarily, the correlation coefficient relating $\Delta p$ and $\bar{U}_{20}$ is smaller and more variable, ranging from 0.75 to 0.93, than for the full signal analysis. However, the correlation between $\Delta p$ and $(\bar{U}_{20})^2$ is larger than before and allowing for this effect improves the fit considerably. The regression coefficient C varies greatly, ranging from 1.1 to $5.1 \times 10^{-4}$ mb/(cm/sec)$^2$, generally lower than the comparable values from the full signal analysis.

For both cross-strait pressure differences where the pressure from Station 2 is used, $\Delta p(3-2)$ and $\Delta p(4-2)$, the regression coefficient b and the correlation coefficient $R_{12}$ are notably lower than for the other two pressure differences $\Delta p(4-1)$ and $\Delta p(3-2)$. This lower level of coupling could be the result of a problem with the measurements at Station 2 or it may reflect real differences in the bottom pressure at this location. Station 2 was positioned on a broad shallow shelf off Jordan River and was further offshore than any other 20 m pressure gauge.

The difference $\bar{U}'_{20}$ between the measured residual current $\bar{U}_{20}$ and the fitted residual current $\Delta p/b - a/b - (C/b)(\bar{U}_{20})^2$, has maximum absolute values ranging from 3.3 to 6.0 cm/sec. Lagging one signal with respect to another resulted in only a marginal reduction in the size of $\bar{U}'_{20}$.

In attempting to account for the difference in the fitted and measured residual currents, a study of the coupling between pressure differences and the local wind at Sheringham Point was made, using linear regression analysis. The correlation coefficients R are small; between $\Delta p$ and the up-strait wind, R=0.18, between $\Delta p$ and the cross-strait wind, R=0.20. Apparently the effect of wind on cross-strait pressure differences is small, although given the nature of the wind data, being taken at a shore station on one side of the strait only, further study of this effect is warranted.

The difference between the fitted and measured residual currents is not large in view of the uncertainty in the data. In addition to the uncertainty about the observations from each current meter, we have seen in the previous section that large incoherent changes were found in the residual currents with positions across the strait. This suggests that measurements of the current at five locations may not be sufficient to accurately determine the residual current, averaged over the width of the strait. At 120 m depth, where measurements from only two current meters were available, the situation is worse. In addition, the accuracy of the pressure gauges, is better than required in view of the size of the residual currents. For pressure Stations 1, 2 and 3, the relative accuracy should be approximately ±0.3 mb equivalent to 1.8 cm/sec uncertainty in the current. The remaining bottom pressure gauges have a larger absolute pressure range and accuracy of ±3 mb equivalent to 18 cm/sec uncertainty. Considering the size of the experimental uncertainties the pressure differences respond to the residual currents as well as can be expected.

b. Cross-spectral analysis

The cross-spectral estimates were computed from the time series quantities using hourly values, and the digital filters $A_4 \cdot A_4 \cdot A_5/4 \cdot 4 \cdot 5$ for data sampled at 15 minute intervals and $A_2 \cdot A_2 \cdot A_3/2 \cdot 2 \cdot 3$ for data samples at 30 minute intervals. To reduce the large amount of activity at the diurnal and semi-diurnal frequencies and thereby limit sideband leakage, a 25 hour running average filter, $A_{25}/25$ was applied. From 1000 hourly values beginning at 0000 May 29, 1975 after removing the mean and the linear trend, the cross-spectral values were computed and corrected for filter losses.

Significant levels of coherence are found between cross-strait pressure differences and the residual current in the two lowest frequency bands that contain almost all of the activity (Figure 19). In all other frequency bands, with the exception of the band centred at 0.55 cpd, the coherence levels are generally low and not statistically significant. The spectral response, coefficient (b) also displayed in Figure 19, ranges from 0.16 to 0.21 mb/(cm/sec) in the lowest frequency band (0.067 cpd) and is generally somewhat lower in the second frequency band (0.18 cpd). These results support the findings of linear regression analysis.

Time series plots of the filtered down-strait pressures indicate little correlation with the residual current $\bar{U}_{20}$, (Figure 16). Similarily, Figure 15 suggests little correlation between pressure differences at 120 m depth and $\bar{U}_{120}$. To study the relationship in more detail, a cross-spectral analysis was carried out using $\Delta p(1-2)$ and $\Delta p(8-7)$, (the pressure differences with the least erroneous data), with $\bar{U}_{20}$ and $\bar{U}_{120}$, respectively. The results are displayed in Figure 20. In both cases, the coherence levels are less than the 90% significance level in the three lowest frequency bands, at which almost all of the activity of the signals occurs.

The correlation of cross-strait pressure differences at 20 m and the wind at Sheringham Point was examined using cross-spectral analysis (Figure 21). The coherence between $\Delta p(3-2)$ and each component of the wind is near 0.9 at the frequency bands centred at 0.31 and 0.43 cpd, and otherwise below the 90% significance levels. Since these two bands contain little of the total variance of $\Delta p$, the wind accounts for little of the total variance of the residual cross-strait pressure differences.

## 10. Summary and Conclusions

The feasibility of using pressure differences to determine currents flowing through Juan de Fuca Strait was investigated. The investigation was carried out separately for the dominant tidal currents at diurnal and semi-diurnal frequencies and for the low frequency residual currents.

An examination of the equations of motions revealed that cross-strait pressure differences resulting from the Coriolis force acting on up-strait currents should be larger than pressure differences due to other causes. For the large tidal currents, the accelerations of cross-strait currents and centripetal accelerations may produce pressure differences large enough to limit the accuracy of the method. For the residual currents, the effects of surface wind stress as well as centripetal accelerations may be the limiting factors.

To test the method of determining the up-strait current averaged over the width of the strait from pressure differences across the strait, a field experiment was conducted in Juan de Fuca Strait. Over a seven week period, simultaneous observations of currents and bottom pressures together with water properties, winds and air pressure were made as described by Fissel and Huggett (1976). Because the opposite sides of the strait are not levelled with respect to each other, the absolute pressure difference could not be determined. Hence, only changes in the current could be computed rather than the actual current.

a. Relation of pressure differences to currents for full signal

For the full signal, largely dominated by the diurnal and semi-diurnal tidal activity, the following conclusions are drawn:

(1) the relationship between cross-strait pressure differences and the cross-strait averaged up-strait current is in agreement with the theoretical value, ($fL/\alpha$ where $f$ is the Coriolis parameter, $L$ is the width of the strait and $\alpha$ is the specific volume) to within experimental accuracy ($\pm 20\%$ of up-strait speed).

(2) the relationship between cross-strait pressure differences to the square of the cross-strait averaged current, produced by the centrifugal force associated with channel curvature varies by a factor of two from the theoretical value, depending on the pair of pressure stations used.

(3) from pressure differences at 20 m depth, about 80% of the time dependent variability in the up-strait current can be determined. The standard deviation of the error current (the difference between the measured current and the current predicted from pressure differences) is approximately $\pm 10$ cm/sec, comparable to the accuracy of current predictions from current meter harmonic data.

(4) Similarily, pressure differences at 120 m depth account for about 80% of the time dependent variability in the up-strait current.

(5) The differences between the measured current fluctuations and that determined from pressure differences are attributed to local acceleration of cross-strait currents, changes in the density of the water column that are not in isostatic

balance with the sea surface elevation and errors in measurement of currents and pressures.

(6) Pressure differences along the strait do not correspond as well to the up-strait currents as do the cross-strait pressure differences. When two or more waves of different frequencies are present, as is the case with tidal currents, the uneven weighting results in reduced correlation between the lagged pressure difference and the current.

b. Residual Currents

The residual currents are defined as the flow remaining after currents with frequencies less than 0.8 cycles per day, and in particular the diurnal and semi-diurnal tidal currents, are removed by means of digital filtering. Fluctuations of the residual currents in Juan de Fuca Strait between Sheringham Point and Pillar Point are found to have the following properties:

(1) 80% of the total variance of the residual currents is concentrated at frequencies less than 0.25 cycles per day.

(2) the amplitude fluctuations in the up-strait component of the residual current are larger by a factor of two than those of the cross-strait currents.

(3) The amplitude fluctuations of the residual currents at 20 m depth are considerably larger than the fluctuations at 120 m depth.

(4) The residual up-strait currents are poorly correlated at the lowest frequencies where most of their activity occurs. Even fluctuations of the current at pairs of stations that are adjacent to one another (with a typical separation of 4 km) are not consistently correlated at the 90% statistical significance level.

c. Relation of pressure differences to residual currents

The fluctuations in the residual currents, though of much smaller magnitude than those of the tidal currents, are important as they provide an indication of the net flow over a tidal cycle. For this reason, the applicability of the method to determining residual currents was examined by using digital filters to extract the low frequency fluctuations of the up-strait current (averaged over the width of strait) and pressure differences. The results to follow must be regarded as tentative because the fluctuations in the residual current vary with the position across the strait and therefore the current, averaged over the width of the strait may not be reliable when computed from currents measured at five positions at 20 m depth or two positions at 120 m depth. The findings are:

(1) A long term drift, not due to residual currents and

approximately linear with time, occurs in the pressure differences. This is apparently caused by low frequency drift of the pressure transducers and should, in future uses of the method, be removed before using pressure differences to compute currents.

(2) At 20 m depth, the response of pressure differences to the residual current averaged over the width of the strait is 18% to 42% lower than the theoretical value while the correlation coefficient between the two quantities ranges from 0.75 to 0.93. Given the uncertainty of the computation of the residual current and experimental uncertainties, the result is as good as can be expected.

(3) Some correlation is found between pressure differences and filtered time series of the square of the up-strait current, reflecting the importance of the centrifugal force. These have the correlation coefficients ranging from 0.29 to 0.65.

(4) The correlation between either component of the wind (cross-strait or along the strait) with variations in the pressure differences is small.

(5) At 120 m depth, the correlation between cross-strait pressure differences and residual current is poor. This is a result of the lower accuracy of the pressure gauges (reduced by a factor of 10 from the 20 m depth gauges due to the requirement of measuring larger pressures), the smaller fluctuations of the residual current itself and the inadequate spatial sampling (only two current meter records were available at this depth).

d. Conclusion

A method for determining the fluctuations in the current averaged over the width of strait from the pressure difference across the strait has been examined for two levels in Juan de Fuca Strait. For both the strong diurnal and semi-diurnal tidal currents and the weaker residual currents, the pressure differences associated with the Coriolis force acting on the motions is in numerical agreement with theory.

The currents determined from the pressure differences generally agree within 20% with the measured current for the full signal. The error in the method is not a result of limitations in the accuracy of the pressure gauges but rather due to other physical phenomena which also cause differences in the pressure across the strait. These phenomena are thought to be local accelerations of the cross-strait current and variations in the density on either side of the strait that are not in isostatic balance with the sea surface elevation. For the full signal then, the accuracy of the pressure difference method will depend largely on the size of these

other factors relative to the pressure differences resulting from the Coriolis force.

A rule of thumb criterion for the minimum current measurable by the pressure difference method, due to uncertainty in the pressure gauges measurements, is that $f \cdot L \cdot U/\alpha > 2 \cdot Ep$ where f is the Coriolis parameter, L is the width of the strait, U is the strength of the current along the strait, $\alpha$ is the specific volume and Ep is the uncertainty in the pressure measurements (taken as 0.3 mb for gauges with a 0-31 dbar range). Taking U in cm/sec and L in km, this becomes:

$$L \cdot U > 60$$

For the residual currents, the method could not be properly tested because the large spatial variations of the residual current fluctuations across the strait with cross-strait positions indicate that sampling the current at five locations is not adequate to compute a meaningful cross-strait averaged residual current. In view of the uncertainty in the averaged current, its correlation with the pressure differences is surprisingly good, but a more definite conclusion will depend on further tests of the method, using an improved measure of the averaged residual current.

## 11. Recommendations

Because of the positive results of this study, further investigations of the use of cross-strait pressure differences as a measure of currents are warranted. The use of pressure differences along the strait to determine the current is less promising but should not be ruled out entirely. Since the pressure difference across the strait due to the Coriolis force is proportional to the width of the strait while pressure differences along the strait are independent of the width, in narrow straits the size of the cross-strait pressure differences may be less than the accuracy of the pressure gauges while the pressure differences along the strait remain measurable.

Pressure differences should be measured in a variety of locations. Besides Juan de Fuca Strait, measurements could be made in the Strait of Georgia and narrower coastal straits. Consideration should also be given to locations further offshore such as Hecate Strait or west from Vancouver Island. Measurements in deeper water will be less accurate since pressure transducers of larger range are required so that the distance separating the pressure stations must be correspondingly longer. In coastal areas, the installation and recovery of the pressure gauges is relatively easy and therefore measurements of pressure differences could be incorporated into a current survey carried out for other reasons.

The results of this study indicate the need for a continual program of monitoring the Aanderaa pressure gauges. Long term drifts and sudden changes in the mean pressure readings were evident in several of the pressure records. The size of these effects is sufficiently large in relation to the size of pressure differences resulting from

residual currents that an understanding of the effect is needed, either to eliminate the problem or to deduce a method of correcting the pressure readings.

For residual currents, a dense spatial sampling scheme is required in order to adequately measure the current averaged over the width of the strait for the purpose of testing the method. An alternative to using many current meters would be the measurement of the potential difference in telegraph or telephone cables induced by the currents. As well, a better theoretical understanding of the cause of the cross-strait variability of the residual current is required in order to make the pressure difference method of current measurement more applicable to practical problems.

Further studies should include measurements of cross-strait currents and densities of the water column at the site of the bottom pressure gauges. These phenemona may account for the discrepancy between the measured current and the current determined from cross-strait pressure differences. In Juan de Fuca Strait, a thermistor chain suspended from a surface float above the pressure gauge would provide continuous values of temperature, and using the known temperature-salinity curves for this water body, continuous time series of density could be computed.

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TABLE 1

Estimated sizes of pressure differences due to various causes for Juan de Fuca Strait in the vicinity of Sheringham Point. For details on these estimates, refer to the text.

| | Pressure Difference (mb) | |
|---|---|---|
| Cause | Tidal Currents | Residual Current |
| Coriolis force | 23 | 5 |
| Self tide | 0.27 | <<0.27 |
| Wind stress | 0.4-1.9(max.) | 0.4-1.9(max.) |
| Cross-strait acceleration | <8 | 0.16 |
| Centripetal acceleration | 1.0-3.9 | 0.5-2.0 |
| Difference in air pressure | <0.5 | <0.5 |
| Density variations | Negligible | Negligible |
| Wave radiation stress | <<1.2 | <<1.2 |
| Dynamic pressure head | Negligible to 5.1 depending on exposure | |

TABLE 2

Summary of the linear regression of cross-strait pressure differences at 20 m depth with $\bar{U}_{20}$ and $(\bar{U}_{20})^2$. The regression coefficients b and c are defined as $\Delta p = a + b \cdot \bar{U}_{20} + c \cdot (\bar{U}_{20})^2$. $R_{12}$, $R_{23}$ and $R_{13}$ are the correlation coefficients for the pairs $\Delta p$ and $\bar{U}_{20}$, $\bar{U}_{20}$ and $(\bar{U}_{20})^2$, and $\Delta p$ and $(\bar{U}_{20})^2$, respectively. R represents the multiple correlation coefficient, and G and $\bar{U}^1$ max are the standard deviation and maximum of $\bar{U}^1$, the 'error' in the fitted current, as discussed in the text. 'Lag' is the time by which $\bar{U}_{20}$ and $(\bar{U}_{20})^2$ lead (positive value) or lag (negative value) $\Delta p$.

| $\Delta p$ | Lag (hours) | b mb/(cm/s) | c mb/(cm/s)$^2$ | $R_{12}$ | $R_{23}$ | $R_{13}$ | R | G cm/s | $\bar{U}^1$ cm/s |
|---|---|---|---|---|---|---|---|---|---|
| 3-1* | 1.25 | 0.277 | $3.28 \times 10^{-4}$ | .976 | -.549 | -.483 | .978 | 8.6 | 31.3 |
| 3-1 | 1.25 | 0.254 | $2.83 \times 10^{-4}$ | .980 | -.559 | -.493 | .982 | | |
| 3-2 | 0.0 | 0.215 | $6.26 \times 10^{-4}$ | .947 | -.561 | -.380 | .964 | 11.5 | 42.8 |
| 4-1 | 0.0 | 0.230 | $3.40 \times 10^{-4}$ | .966 | -.561 | -.469 | .970 | 10.9 | 41.7 |
| 4-2 | -1.0 | 0.239 | $4.64 \times 10^{-4}$ | .970 | -.561 | -.446 | .977 | 9.2 | 31.8 |

984 hourly values of $\Delta p$ and $\bar{U}_{20}$ were used beginning 0000 May 29 through to 2300 July 10. No values were taken from June 30 or July 1.

*Fitted to current component at 136°T, averaged over width of the strait.

TABLE 3

A comparison of the theoretical and experimental response of pressure differences to the Coriolis stress (b).

| Stations | Separation L in Km | b theoretical | b experimental |
|---|---|---|---|
| 3-1 | 23.3 | .266 | .277 |
| 3-3 | 19.6 | .223 | .215 |
| 4-1 | 21.9 | .249 | .230 |
| 4-2 | 22.2 | .253 | .239 |

TABLE 4

Summary of the linear regression results of pressure difference at 120 m depth with $\bar{U}_{20}$ and $(\bar{U}_{20})^2$. The headings are as for Table 2.

| $\Delta p$ | Lag Hours | b mb/(cm/s)$^2$ | c mb/(cm/s)$^2$ | $R_{12}$ | $R_{23}$ | $R_{13}$ | R | G cm/s |
|---|---|---|---|---|---|---|---|---|
| 6–7[a] | 3.5 | 0.154 | $-9.20\times10^{-3}$ | .620 | .503 | .129 | .656 | 32.5 |
| 8–6[*a] | 1.5 | 0.342 | $-5.35\times10^{-4}$ | .962 | .501 | .480 | .954 | 11.0 |
| 8–7[b] | 1.0 | 0.189 | $2.68\times10^{-4}$ | .944 | .470 | .505 | .946 | 13.7 |

* Fitted to current component at 136°T, averaged over the width of the strait.

a. 744 hourly values were used for the fit beginning 0000 June 10 with a gap due to bad data from 0000 June 30 to 2300 July 2.

b. 1068 hourly values were used for the fit beginning 0000 May 29 with a gap due to bad data from 0600 July 9 to 1200 July 9.

TABLE 5

The coherence and phase among up-strait currents for the lowest frequency band centred at 0.067 cycles per day. Cases where the coherence is less than 0.66 (the 90Σ significance level) are indicated by an 'x'.

| Station<br>Depth | 137<br>20 | 130<br>20 | 131<br>20 | 133<br>20 | 135<br>20 | 136<br>20 | 131<br>120 | 135<br>120 |
|---|---|---|---|---|---|---|---|---|
| 137<br>20 | | x | .91 | x | x | x | x | x |
| 130<br>20 | x | | x | x | x | .89 | .68 | x |
| 131<br>20 | 42 | x | | x | x | x | x | x |
| 133<br>20 | x | x | x | | .81 | x | x | .69 |
| 135<br>20 | x | x | x | -26 | | x | x | .81 |
| 136<br>20 | x | 53 | x | x | x | | .85 | x |
| 131<br>120 | x | -168 | x | x | x | -149 | | x |
| 135<br>120 | x | x | x | -165 | -126 | x | x | |

COHERENCE

Phase in degrees

TABLE 6

The coherence and phase among cross-strait currents for the lowest frequency band centred at 0.067 cycles per day. Cases where the coherence is less than 0.66 (the 90% significance level) are indicated by an 'x'.

| Station | 137 | 130 | 131 | 133 | 135 | 136 | 131 | 135 |
|---|---|---|---|---|---|---|---|---|
| Depth | 20 | 20 | 20 | 20 | 20 | 20 | 120 | 120 |
| 137 20 | | .78 | .84 | x | .82 | x | x | x |
| 130 20 | 63 | | .78 | x | .81 | x | x | .68 |
| 131 20 | -4 | 63 | | x | .81 | x | x | .67 |
| 133 20 | x | x | x | | .76 | x | .67 | x |
| 135 20 | -99 | 160 | 93 | 33 | | x | .80 | .86 |
| 136 20 | x | x | x | x | x | | x | x |
| 131 120 | x | x | x | -4 | -28 | x | | x |
| 135 120 | x | 69 | -9 | x | -100 | x | x | |

COHERENCE

Phase in degrees

TABLE 7

The coherence and phase among up-strait currents for the second frequency band centred at 0.18 cycles per day. Cases where the coherence is less than 0.66 (the 90% significance level) are indicated by an 'x'.

| Station | 137 | 130 | 131 | 133 | 135 | 136 | 131 | 135 | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | 20 | 20 | 20 | 20 | 20 | 20 | 120 | 120 | |
| 137 20 | | x | .86 | .72 | .84 | .80 | x | .67 | |
| 130 20 | x | | x | x | x | x | .75 | x | C |
| 131 20 | 10 | x | | .90 | .76 | .68 | x | .77 | O H |
| 133 20 | 110 | x | -90 | | .86 | .69 | x | .77 | E |
| 135 20 | -180 | x | -159 | -59 | | .80 | x | x | R E |
| 136 20 | -68 | x | 90 | -176 | -112 | | x | x | N C |
| 131 120 | x | -174 | x | x | x | x | | x | E |
| 135 120 | 180 | x | -164 | -68 | x | x | x | | |

Phase in degrees

TABLE 8

The coherence and phase among cross-strait currents for the lowest frequency band centred at 0.18 cycles per day. Cases where the coherence is less than 0.66 (the 90% significance level) are indicated by an 'x'.

| Station<br>Depth | 137<br>20 | 130<br>20 | 131<br>20 | 133<br>20 | 135<br>20 | 136<br>20 | 131<br>120 | 135<br>120 |
|---|---|---|---|---|---|---|---|---|
| 137<br>20 | | x | x | x | x | x | x | .90 |
| 130<br>20 | x | | x | x | .74 | x | x | x |
| 131<br>20 | x | x | | x | x | x | x | x |
| 133<br>20 | x | x | x | | .83 | x | x | x |
| 135<br>20 | x | 160 | x | 9 | | x | x | x |
| 136<br>20 | x | x | x | x | x | | x | x |
| 131<br>120 | x | x | x | x | x | x | | x |
| 135<br>120 | 0.8 | x | x | x | x | | x | |

COHERENCE

Phase in degrees

TABLE 9

Least square fit of 20 m pressure differences to remove the long term drift over a 41.67 day record.

$$\Delta p = a + bt$$

where $\Delta p$ is in mb and t is in days

| Pressure Difference | b(mb/day) |
|---|---|
| $\Delta p(3-1)$ | - .0570 |
| $\Delta p(3-2)$ | +0.0267 |
| $\Delta p(4-1)$ | -0.103 |
| $\Delta p(4-2)$ | -0.0192 |

TABLE 10

Summary of the results of linear regression analysis on the filtered cross-strait pressure differences with the filtered values of $\bar{U}_{20}$ and $\bar{U}^2_{20}$. The table headings are the same as for Table 2.

| $\Delta p$ | b mb/(cm/s) | c mb/(cm/s)$^2$ | $R_{12}$ | $R_{23}$ | $R_{13}$ | R | G cm/s | $J^1$ cm/s |
|---|---|---|---|---|---|---|---|---|
| 3-1 | 0.188 | $3.36 \times 10^{-4}$ | .883 | .205 | .506 | .944 | 1.22 | 3.4 |
| 3-1* | 0.212 | $3.95 \times 10^{-4}$ | .865 | .171 | .506 | .938 | 1.12 | 3.3 |
| 3-2 | 0.136 | $5.11 \times 10^{-4}$ | .751 | .205 | .653 | .908 | 1.55 | -5.4 |
| 4-1 | 0.204 | $1.07 \times 10^{-4}$ | .926 | .205 | .287 | .931 | 1.35 | 3.6 |
| 4-2 | 0.145 | $2.59 \times 10^{-4}$ | .783 | .205 | .428 | .829 | 2.07 | 6.0 |

39 daily values (at 0000 hours PST) were used beginning May 30 to July 10 omitting the days June 30 and July 1.

*Fitted to current component at 136°T, averaged across the width of the strait.

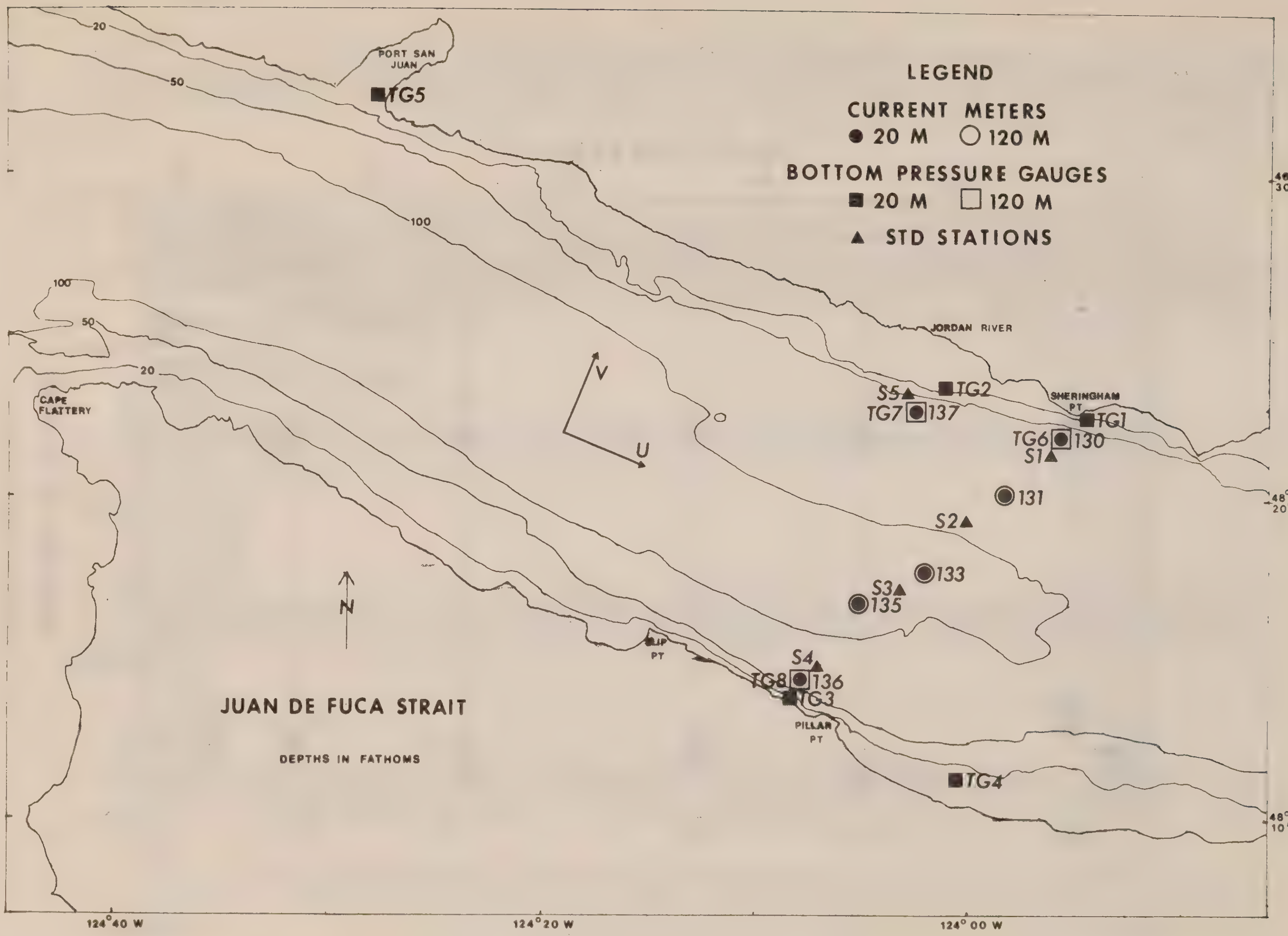


Fig. 1. Location of stations for experimental program in Juan de Fuca Strait.

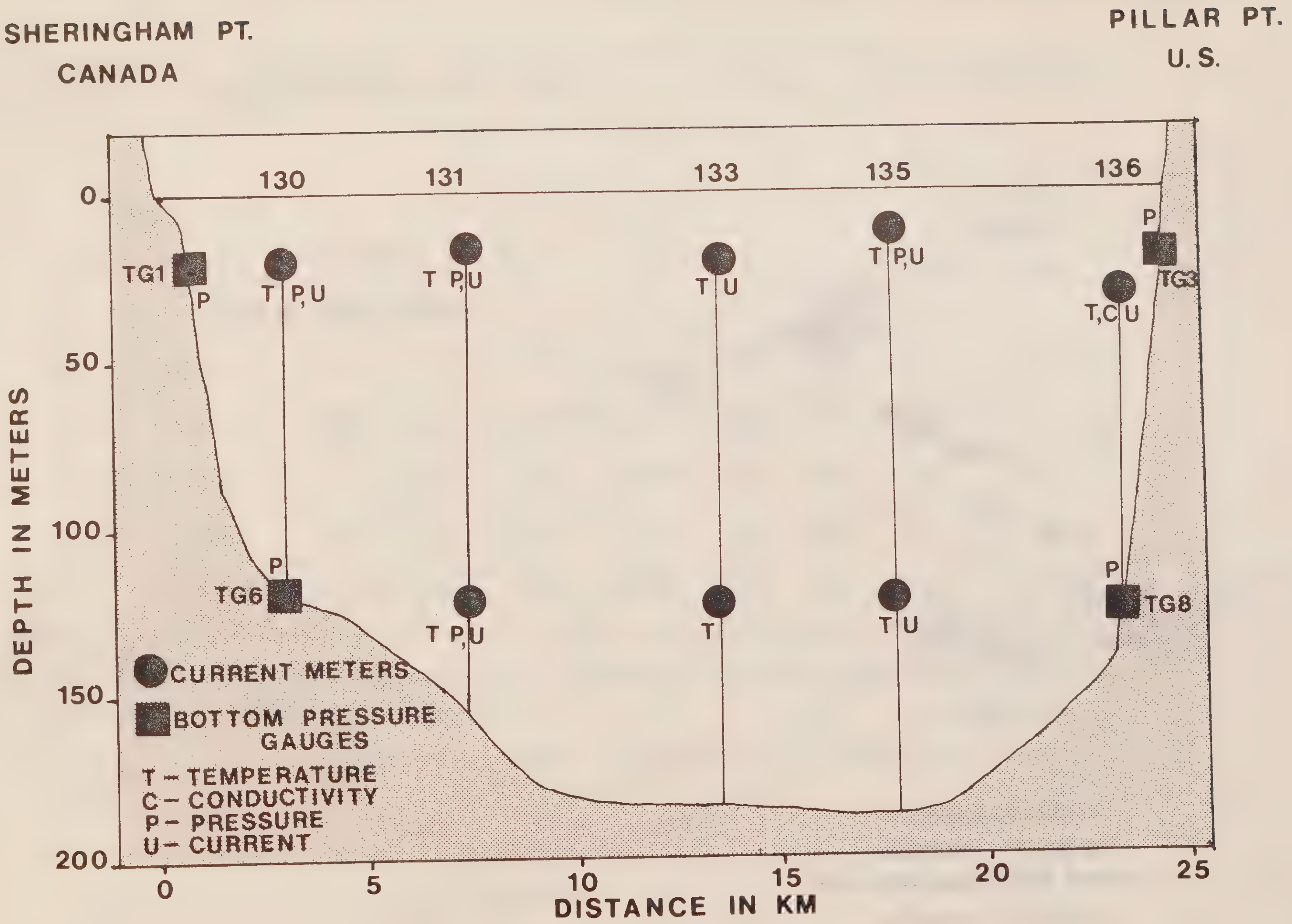


Fig. 2. Cross-section array of current meters and bottom pressures.

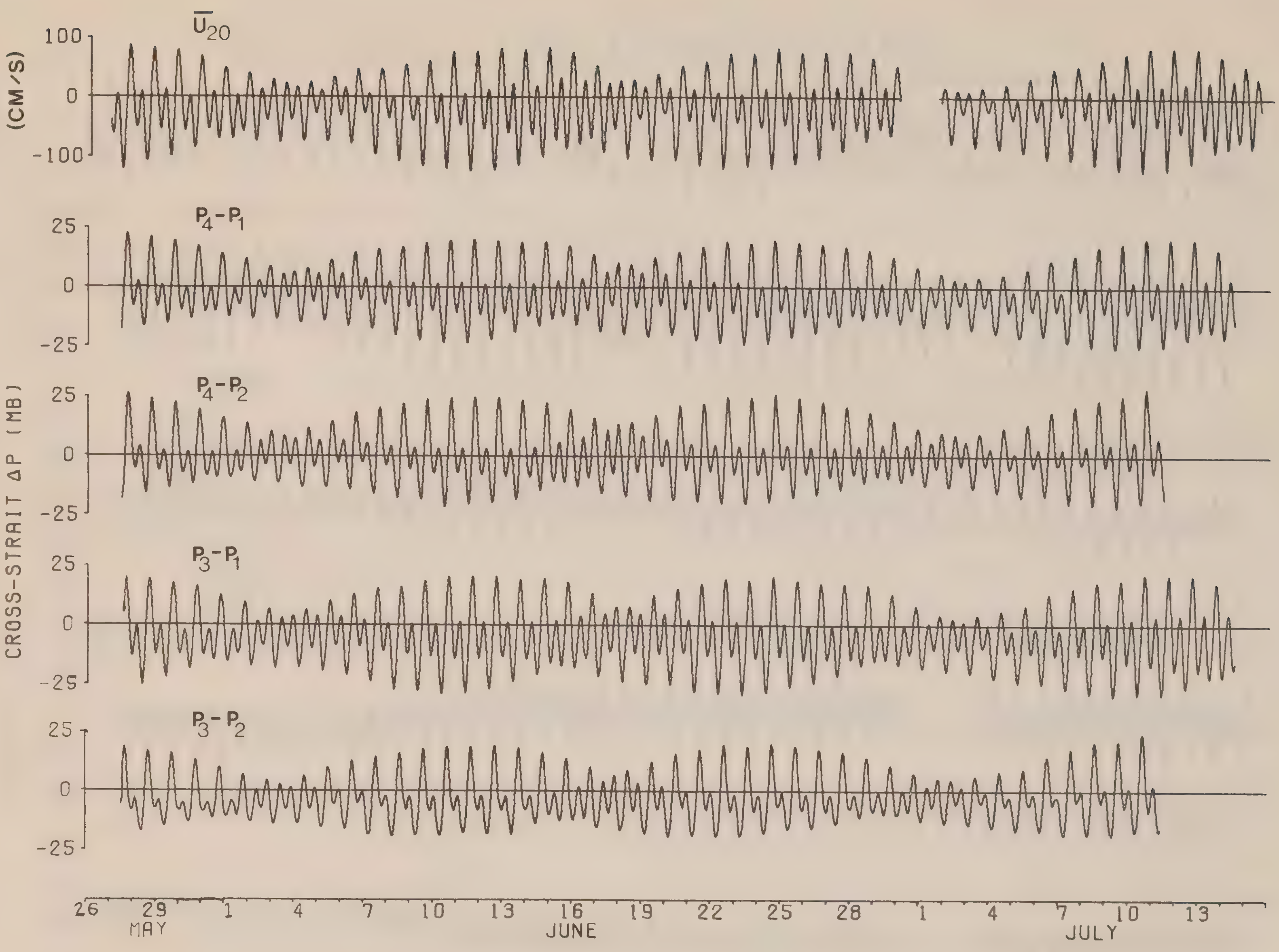


Fig. 3. Time series of up-strait current, averaged over the width of the strait and pressure differences across the strait at 20 m depth.

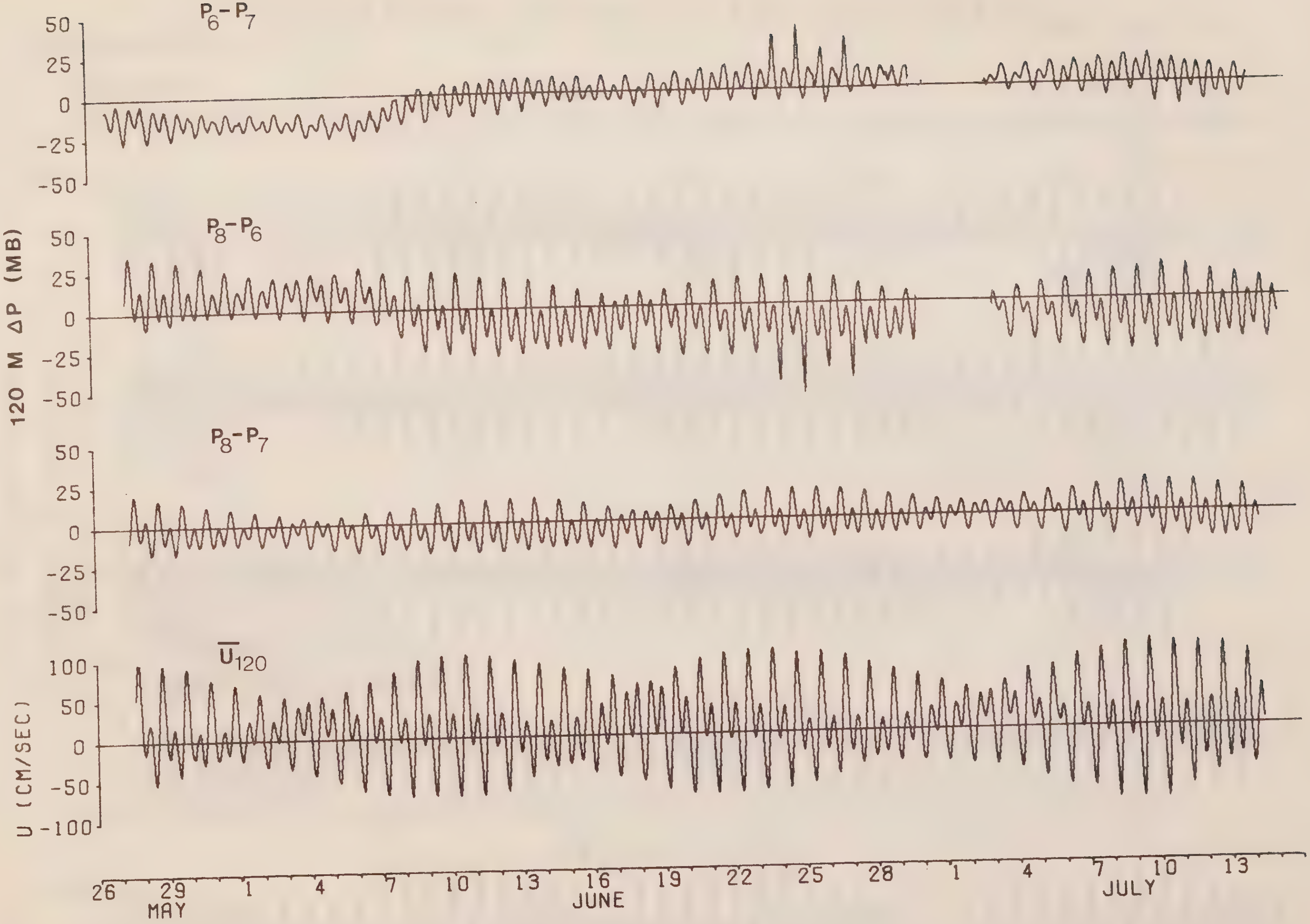


Fig. 4. Time series of up-strait current, averaged over the width of the strait and pressure differences at 120 m depth.

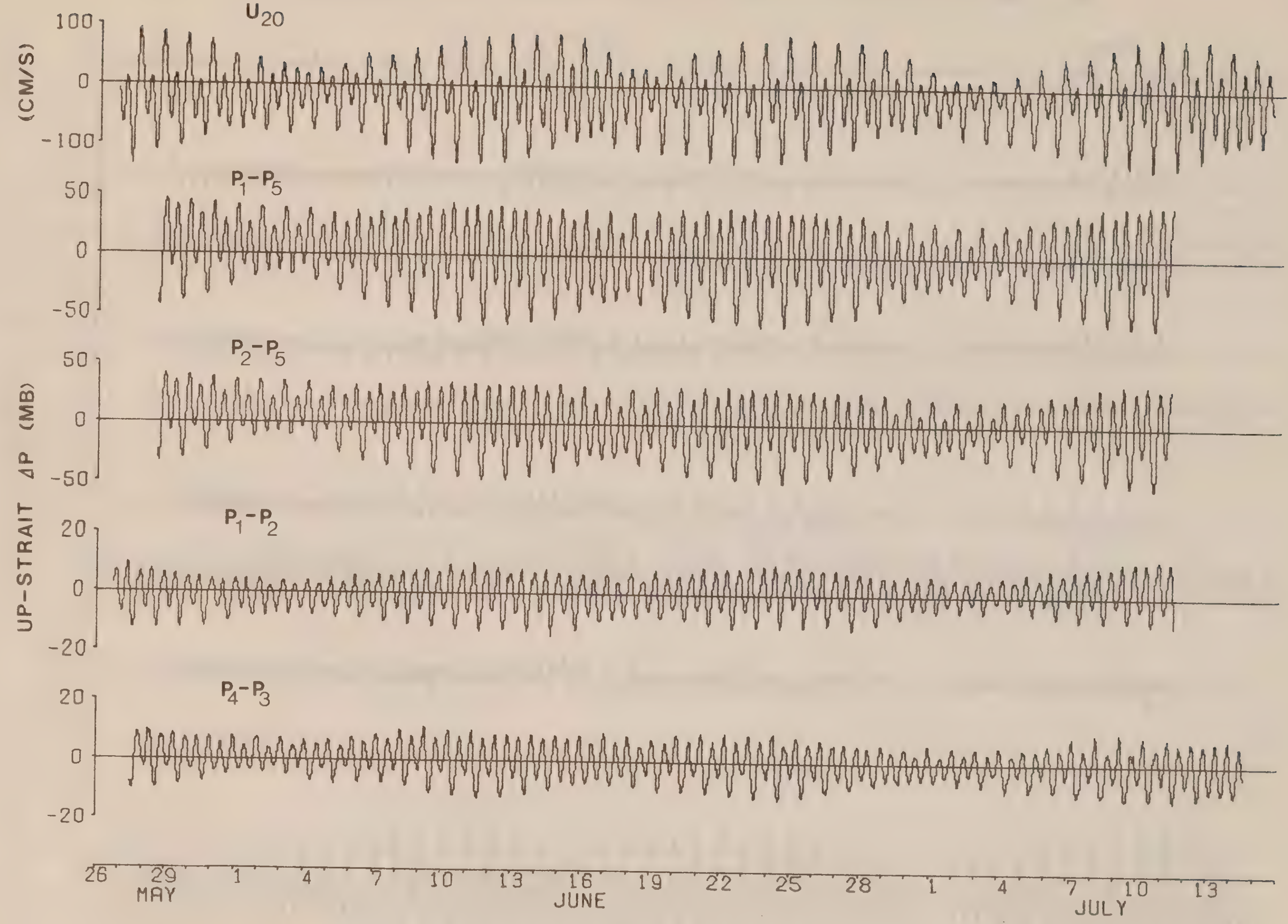


Fig. 5. Time series of up-strait current, averaged over the width of the strait and pressure differences along the strait at 20 m depth.

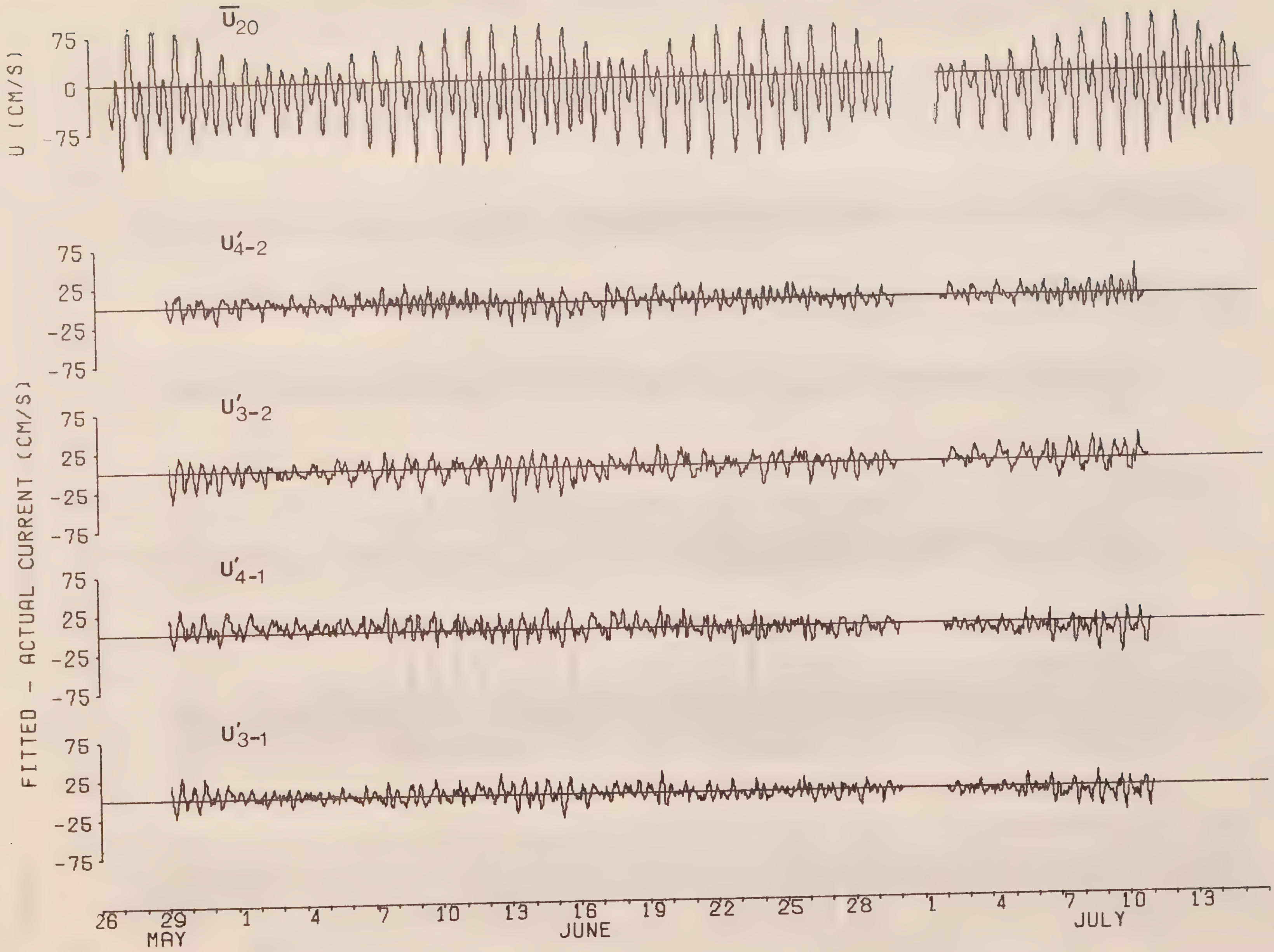


Fig. 6. The error in the current fitted by linear regression analysis for 20 m cross-strait pressure differences.

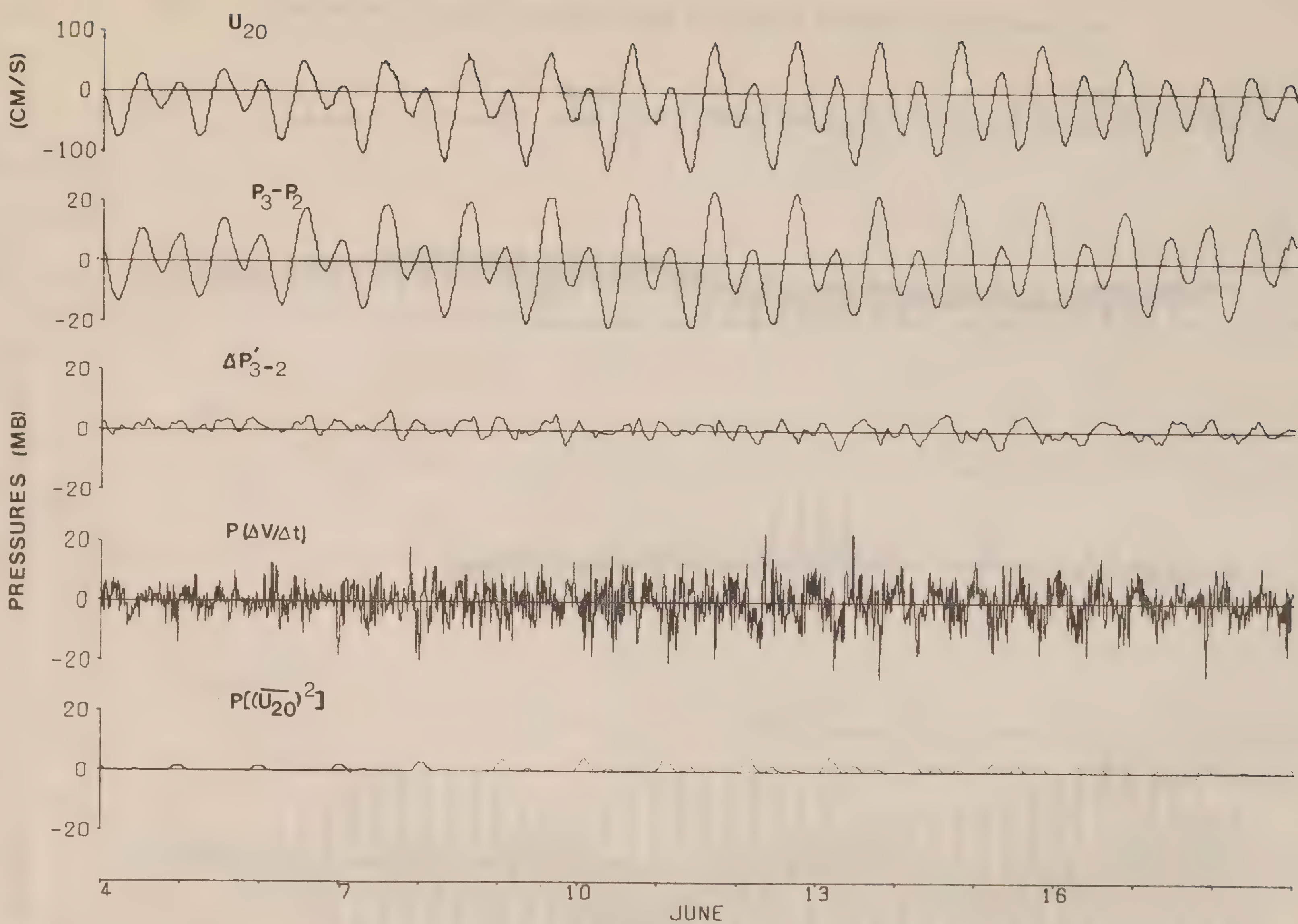


Fig. 7. Cross-strait pressure differences resulting from local acceleration of cross-strait currents and from the centripetal acceleration for 20 m depth together with the measured cross-strait pressure difference $\Delta p(3-2)$ and the remainder after removing the Coriolis effect.

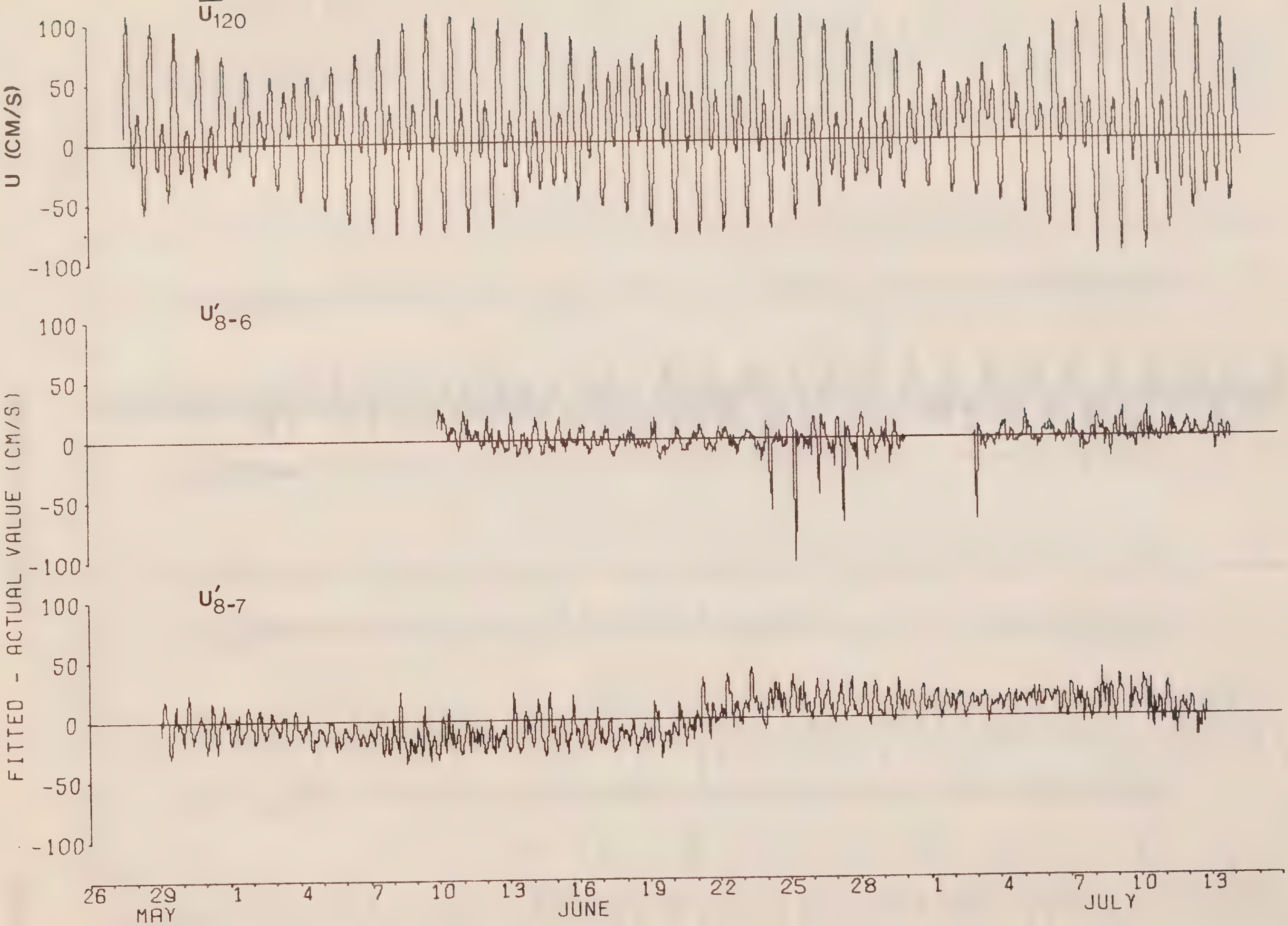


Fig. 8. The error in the current fitted by linear regression analysis for 120 m pressure differences.

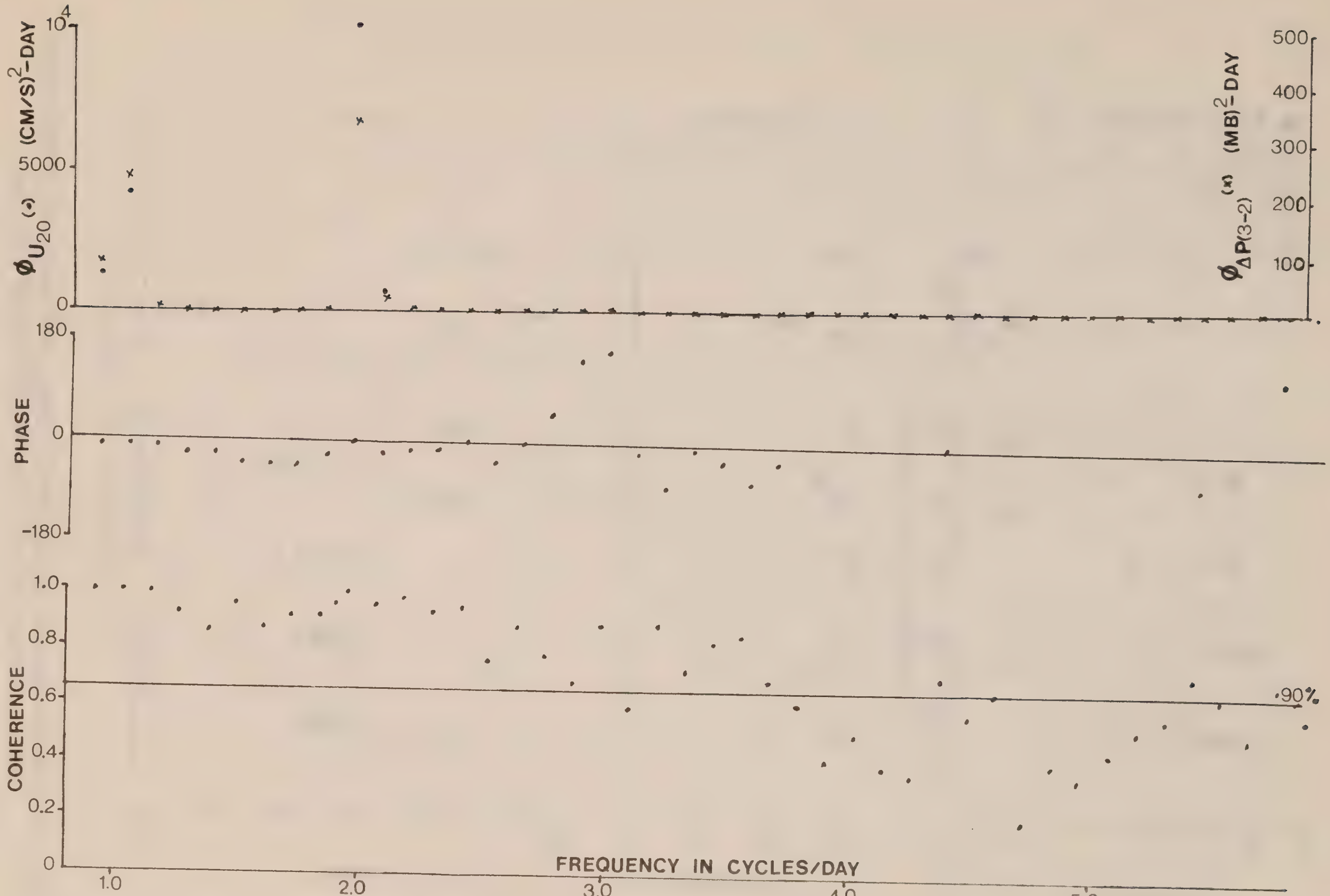


Fig. 9. The power spectra, phase and coherence of the up-strait current at 20 m depth, averaged over the width of the strait and $\Delta p(3-2)$.

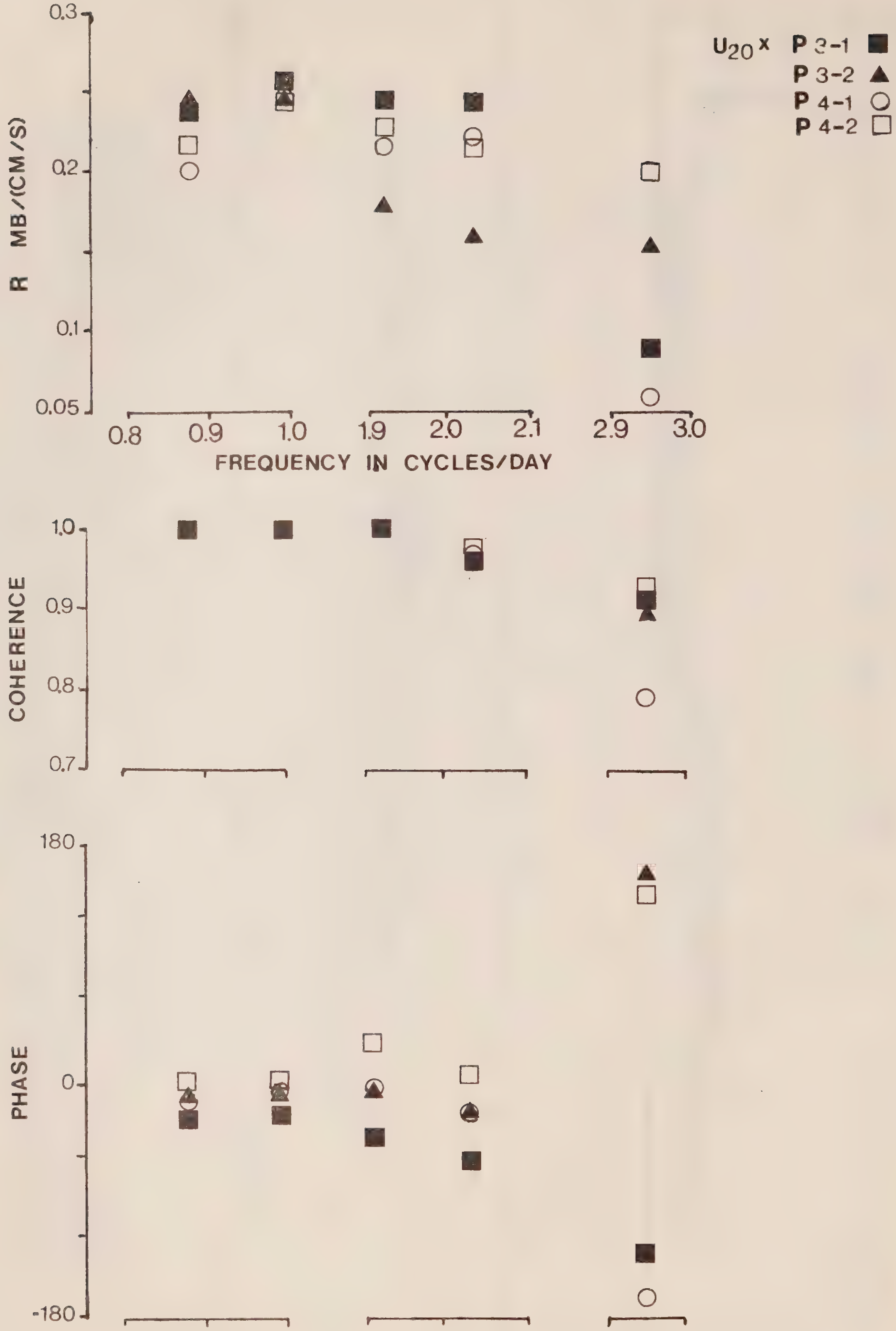


Fig. 10. The spectral response coefficient, coherence and phase between the 20 m cross-strait pressure differences and $\bar{U}_{20}$.

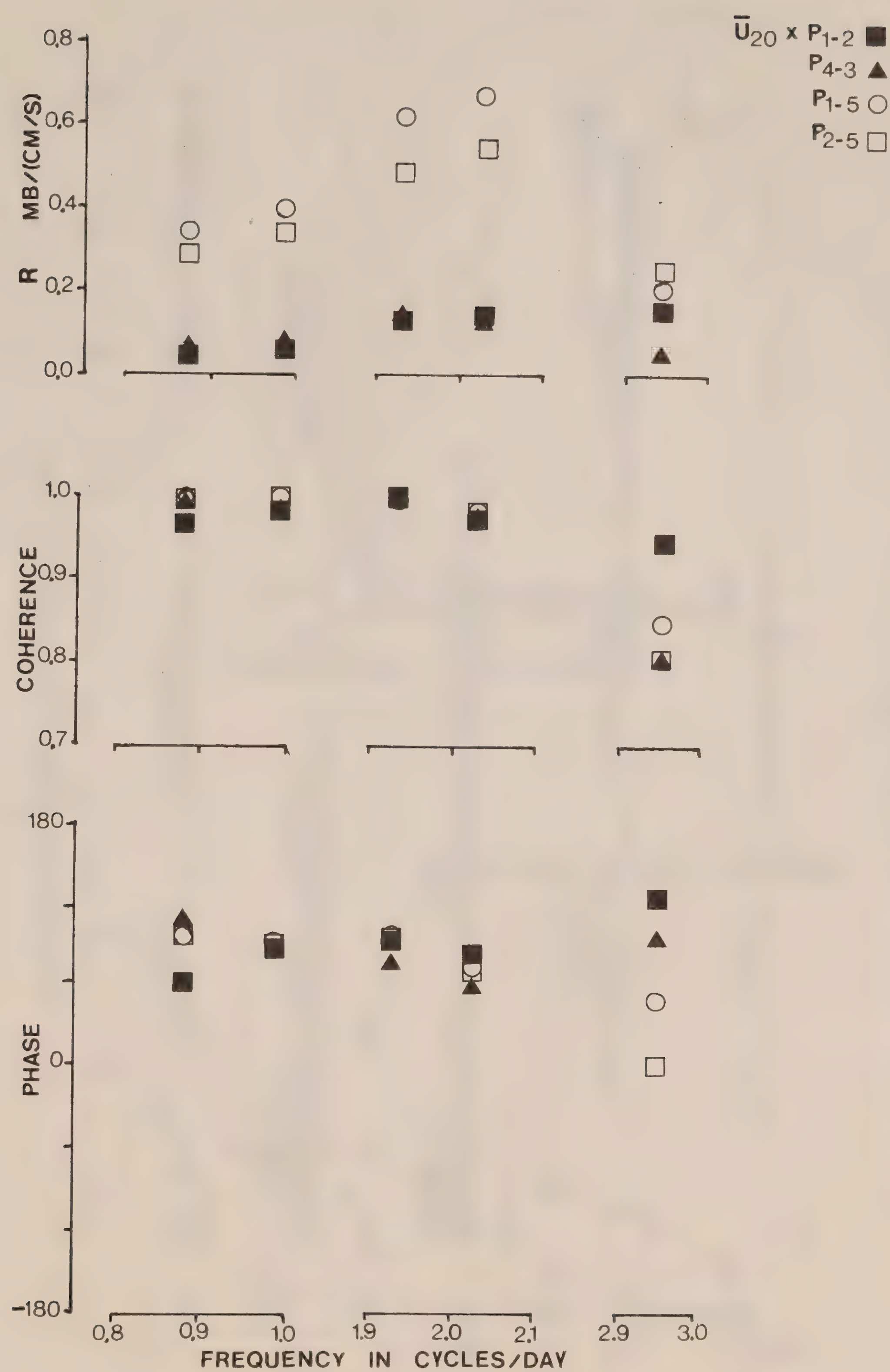


Fig. 11. The spectral response coefficient, coherence and phase between the 20 m pressure differences along the strait and $\bar{U}_{20}$.

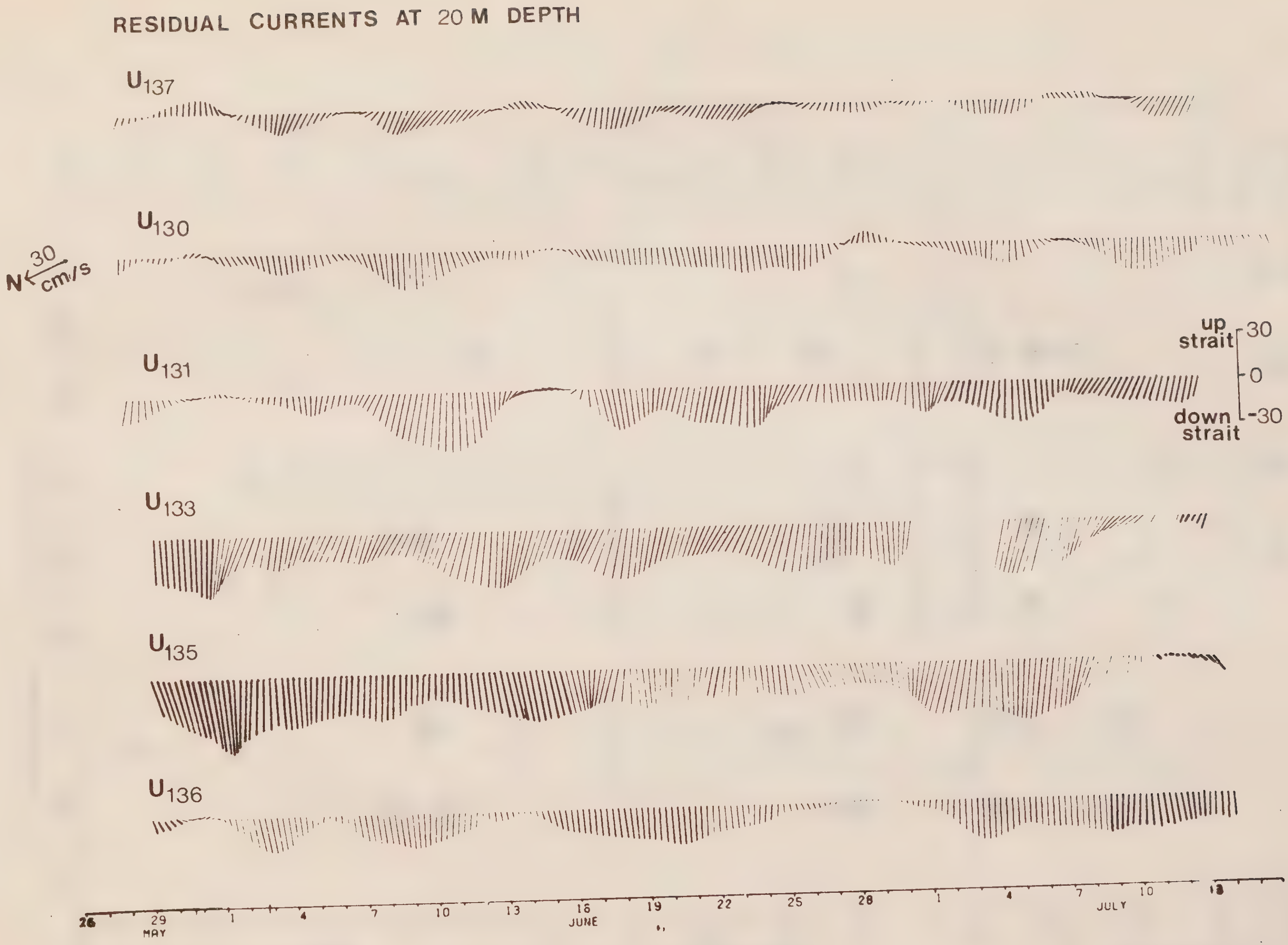


Fig. 12. The residual currents at 20 m depth, displayed as current vectors.

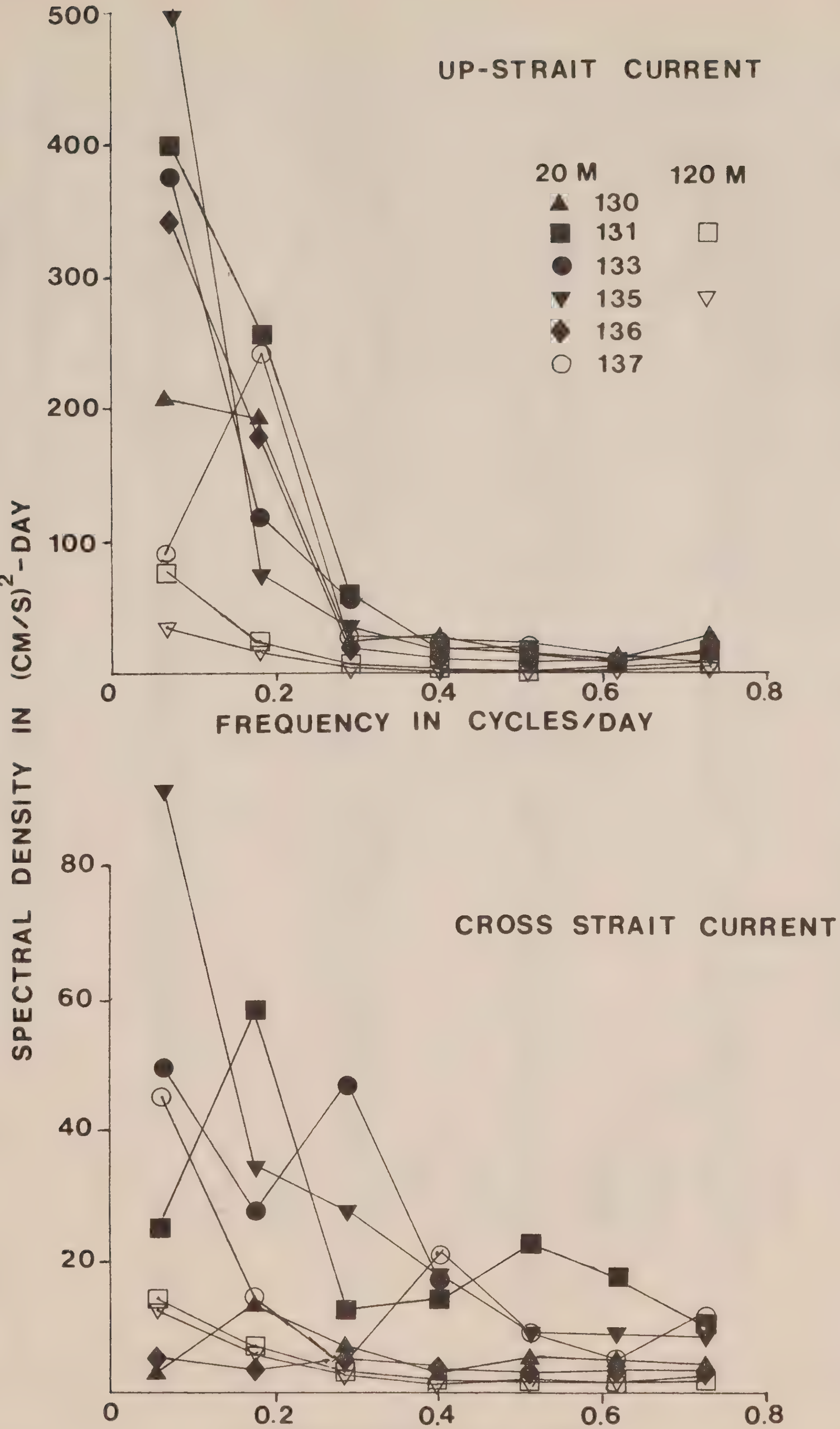


Fig. 13. The power spectral density of the residual currents for each current meter station.

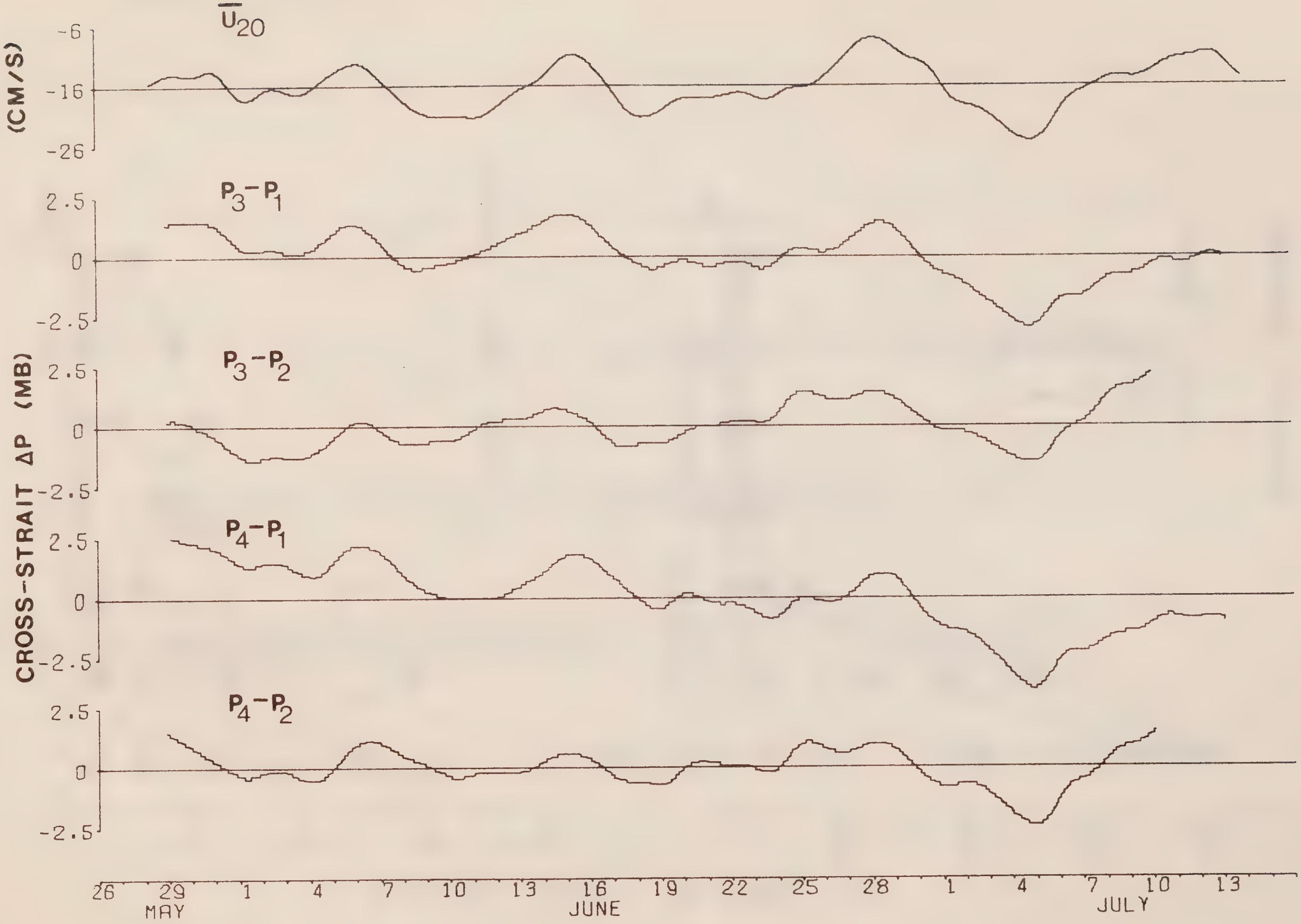


Fig. 14. The low passed up-strait current at 20 m depth, averaged over the width of the strait and low passed cross-strait pressure differences.

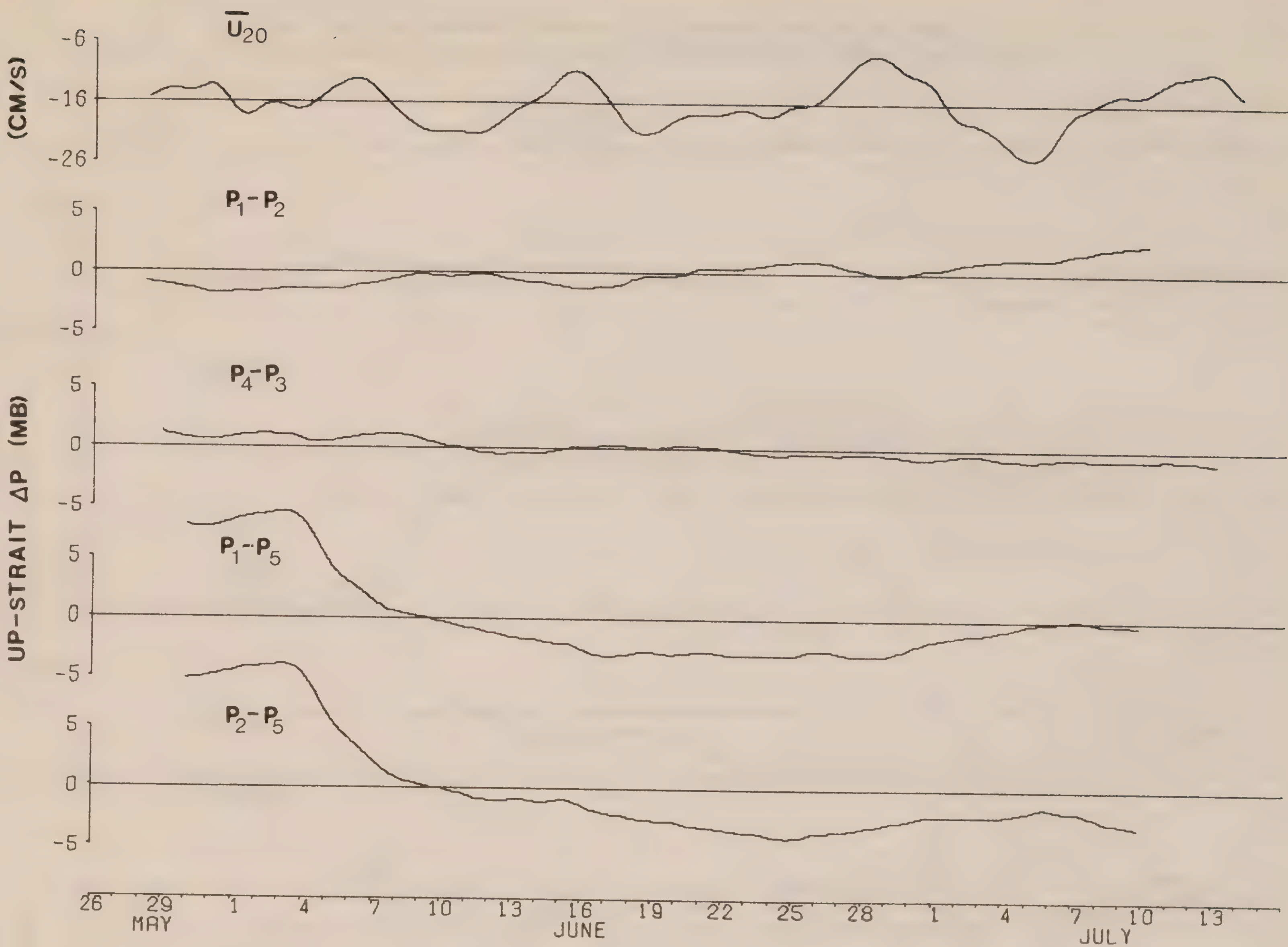


Fig. 15. The low passed up-strait current at 20 m depth, averaged over the width of the strait and the low passed pressure differences along the strait.

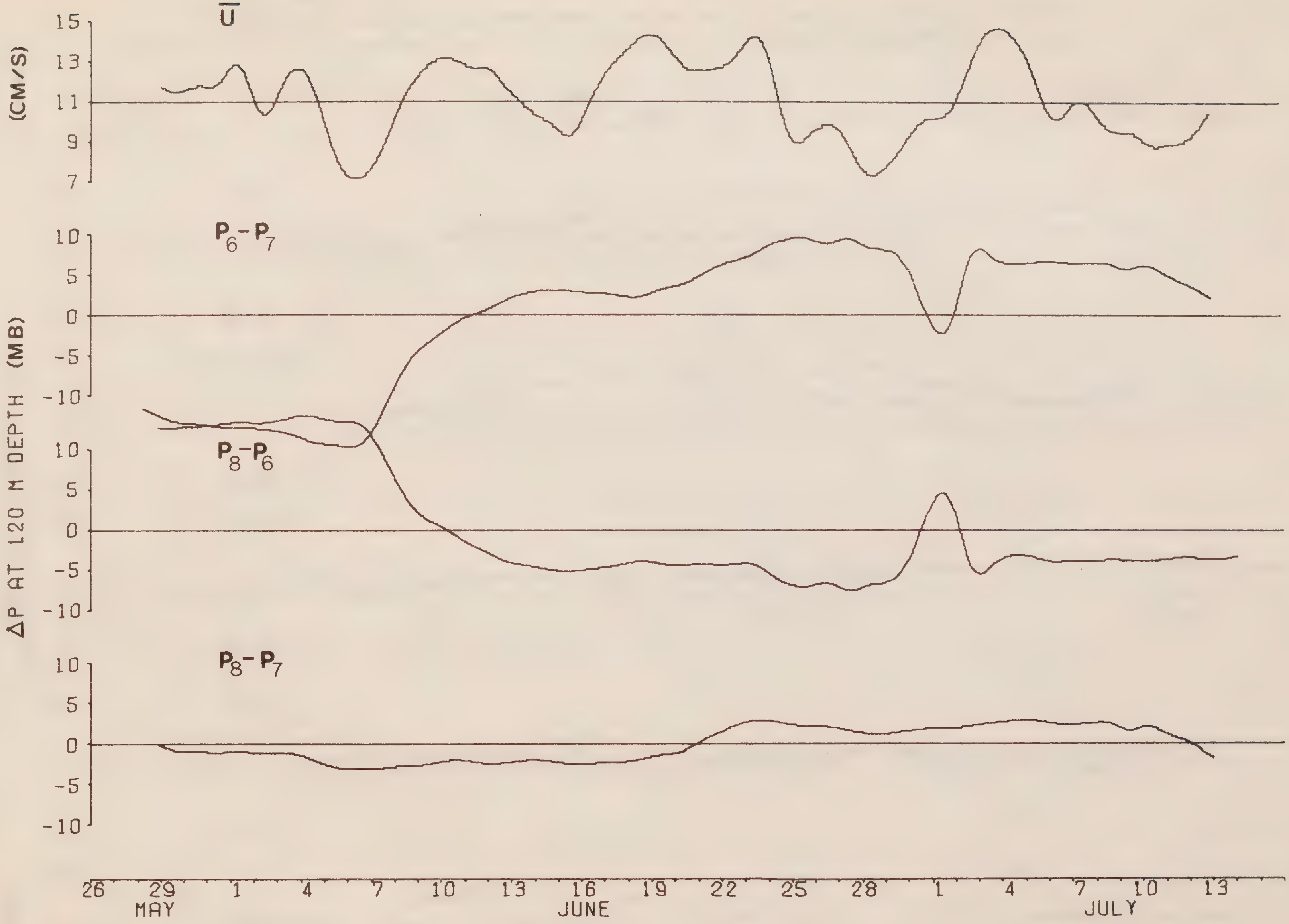


Fig. 16. The low passed up-strait current averaged over the width of the strait and low passed pressure differences at 120 m depth.

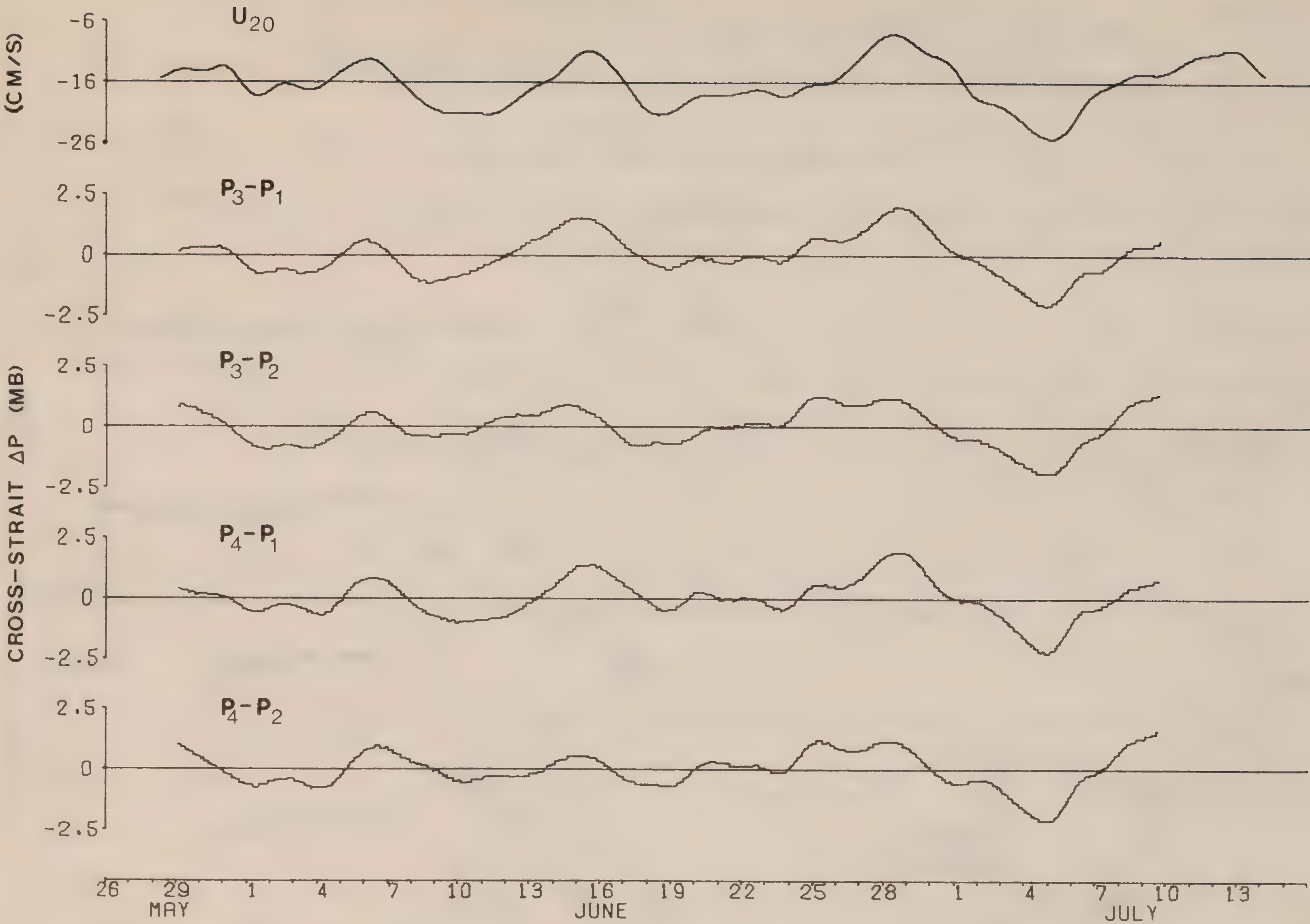


Fig. 17. As in Figure 14, except that the long term drift from the pressure differences has been removed by a linear fit.

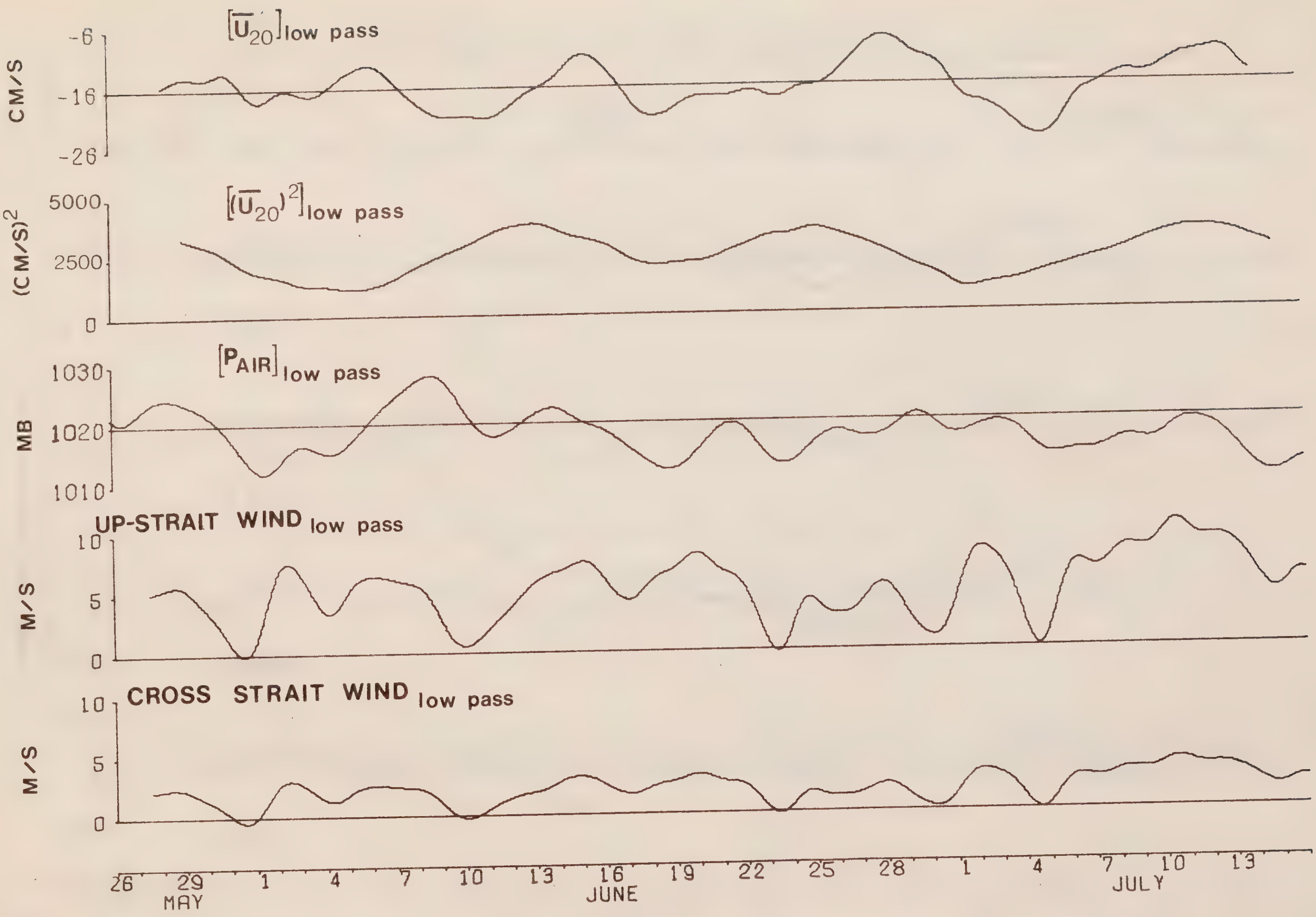


Fig. 18. The low passed up-strait current at 20 m depth ($\bar{U}_{20}$), the low passed square of the up-strait current $(\bar{U}_{20})^2$ and the low passed air pressure, up-strait and cross-strait wind components at Sheringham Point after low pass filtering.

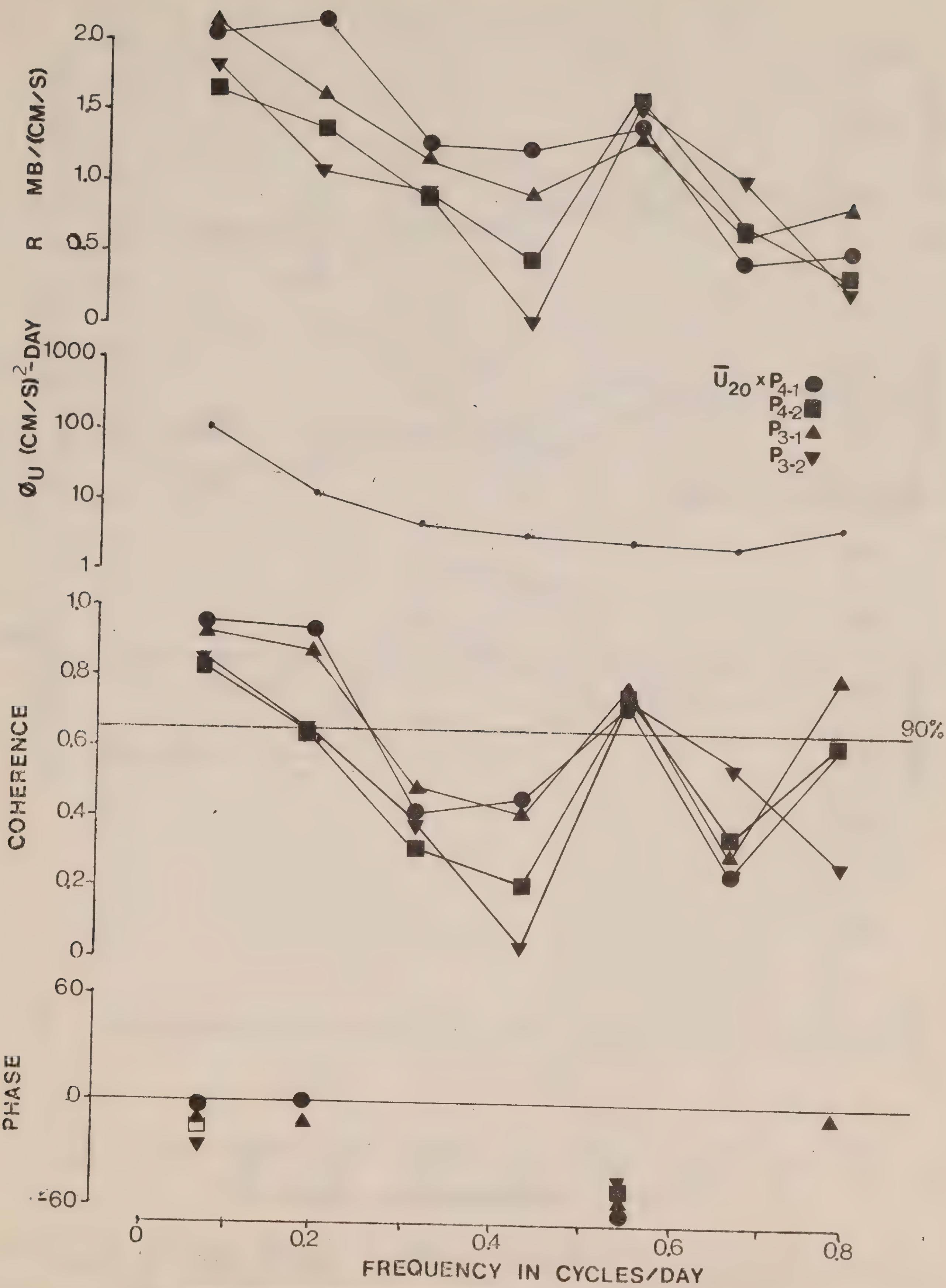


Fig. 19. The spectral response coefficient, phase and coherence between the low passed current $\bar{U}_{20}$ and the low passed cross-strait pressure differences at 20 m depth as well as the power spectral density of $\bar{U}_{20}$.

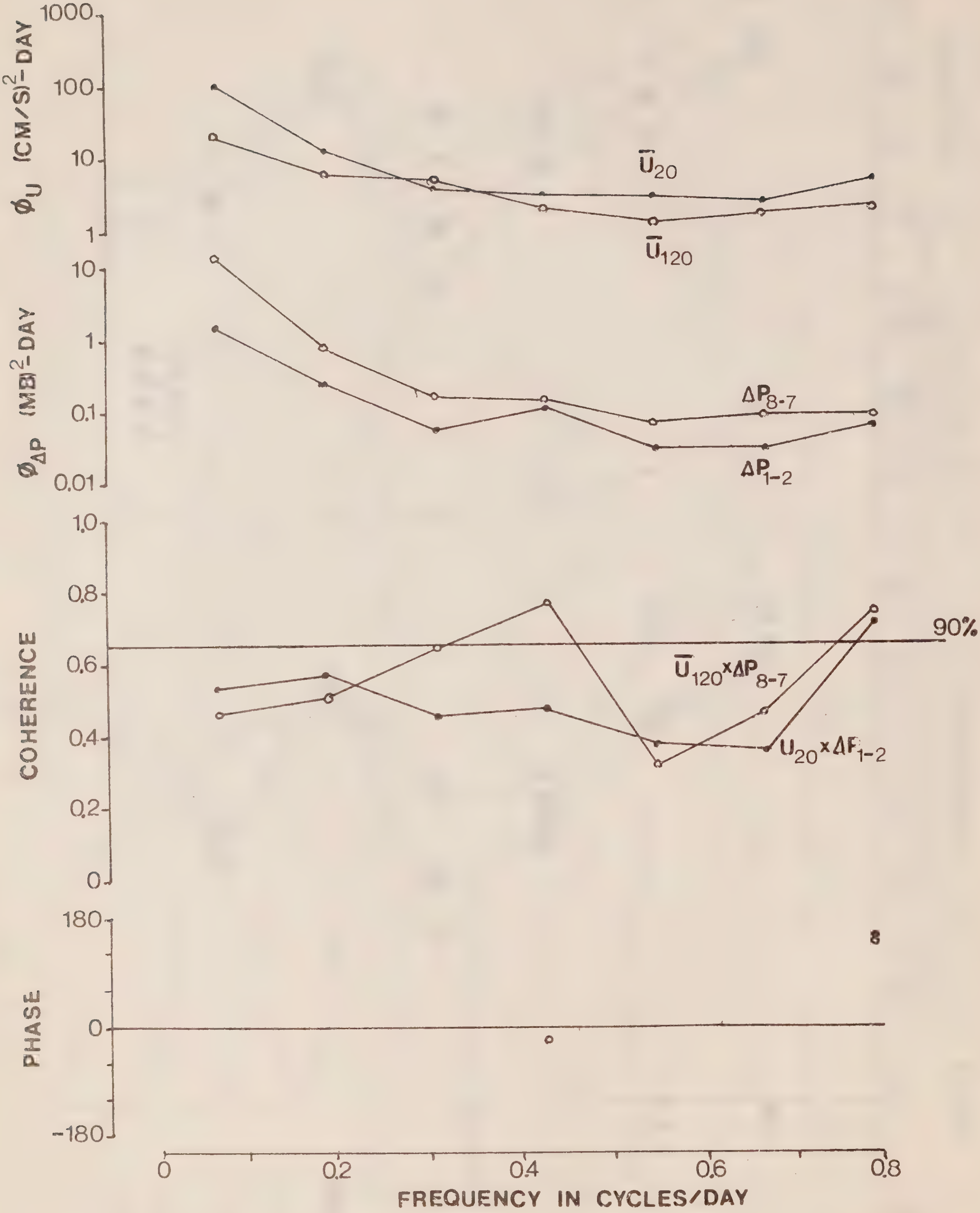


Fig. 20. The power spectra of $\Delta p(1-2)$, $\Delta p(8-7)$, $\bar{U}_{20}$ and $\bar{U}_{120}$ and the coherence and phase for the pairs $\bar{U}_{20}$ and $\Delta p(1-2)$ and the pair $\bar{U}_{120}$ and $\Delta p(8-7)$.

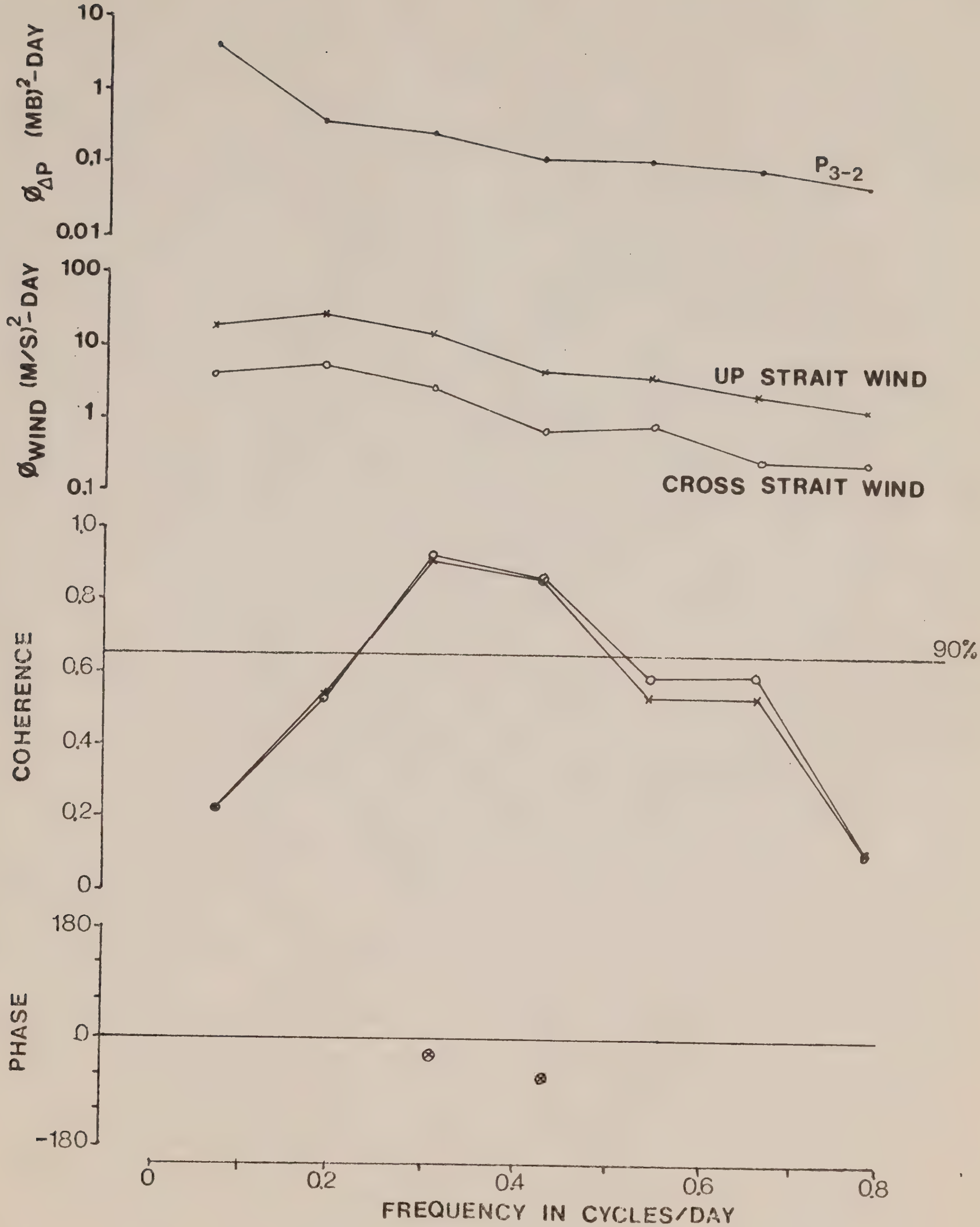


Fig. 21. The power spectra of the up-strait and cross-strait wind components at Sheringham Point and $\Delta p(3-2)$. In addition, the coherence and phase between $\Delta p(3-2)$ and the wind components.

Pacific Marine Science Report 76-18



# CANADIAN MARITIME FISHERIES: A REVIEW TO JANUARY 1976



by
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*Pacific Marine Science Report 76-18*

# CANADIAN MARITIME FISHERIES:

## A Review to January 1976

by

R.O. Brinkhurst* and H.H.V. Hord

* The bulk of the work in this paper was accomplished at the St. Andrews Biological Station, St.Andrews, N.B., and the balance was completed at The Institute of Ocean Sciences, Patricia Bay.

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Victoria, B.C.

August, 1976

This is a manuscript which has received only limited circulation. On citing this report in a bibliography, the title should be followed by the words "UNPUBLISHED MANUSCRIPT" which is in accordance with accepted bibliographic custom.

## CONTENTS

### Part I



### Part II

# PART I

ACKNOWLEDGMENTS

We wish to thank the scientific and technical staff of the St. Andrews Biological Station for their advice and review of various sections of this manuscript. Messrs. Bill McMullon and Frank Cunningham drew up the graphs and illustrations, and Mrs. B. Stickney diligently typed the many drafts of this report. Ms. L.S.C. Thomson provided valuable criticisms of the manuscript and the final version was typed by Mrs. S.A. Moulson.

# INTRODUCTION

This publication is intended to provide an overview of the major* commercial fisheries of the Canadian Atlantic coast in general but more specifically of the maritime region, using that term in the sense of the current Fisheries and Marine Service organization chart which separates both Quebec and Newfoundland from the three remaining provinces, Nova Scotia, New Brunswick and Prince Edward Island. While not a reference for the experienced fisheries scientist in the sense of the extensive treatment by Leim and Scott (1966), this overview should be useful to the fisherman, fisheries office, fisheries administrator, student and interested layman. It is modelled on the excellent review of New Zealand Fisheries by J. G. Watkinson and R. Smith, published by the New Zealand Marine Department and FAO in connection with the Fifteenth IndoPacific Fisheries Council meeting.

*special attention being paid to species yielding 1,000 metric tons (m.t.) live weight and above.

## Beginnings of the fishing industry

Soon after the belated rediscovery of the American continent in the 15th century, aggressive European fishermen recognized the tremendous economic potential of the offshore banks of the Atlantic seaboard. It has been established that as many as 50 Castilian, French, and Portugese vessels were engaged in the fishery on the Newfoundland banks by 1517, and it is estimated that by 1644 the English fleet alone consisted of more than 2,000 small boats. By 1654 Newfoundland recorded a population of 350 families associated to some degree with the fishing industry.

With the colonization of the St. Lawrence River system by the French, conflicts arose with the British which included disputes over the fisheries in the Northwest Atlantic. These continued intermittently over a period of 150 years, but were gradually settled by provisions in the treaties of Utrecht 1713, Paris 1763, and Versailles 1783.

In the early 17th century, a New England-based fishery emerged that was to become a great industry and have a strong influence on the development of the future maritime provinces of Canada. Later difficulties between Great Britain and the United States following the War of Independence were dealt with in various treaties in the succeeding years.

While the cod has been the mainstay of the fishery from the time of its inception, whaling and sealing played an important part until the latter half of the 19th century. After the American colonies won their independence, a whaling industry was established at Dartmouth, Nova Scotia. At about the same time a number of companies, some still in existence, were established in the southern Gulf of St. Lawrence in order to exploit the inshore fisheries. From these early beginnings developed the multimillion dollar industry which is today a significant component of the economy of the east coast provinces and a source of protein for millions.

The inshore fishery, carried out in waters 12-15 miles from shore, is distinct from the fisheries on the extensive submarine banks. Where small boats and light gear dominate the inshore fishery, considerable increase in capital investment has occurred in the offshore fishery up to recent times. The Bluenose type of schooners, dating from the mid 1800's, varied from 75-125 tons or more and were up to 145 feet (44 m) long and carried up to two dozen fishermen, who would work in pairs from small dories, using hand lines. The introduction of steel and steam in the first decade of this century, together with otter trawl used by the foreign fleets, met with opposition from inshore fishermen who anticipated the effect on their way of life and the use of draggers was limited until the 1940's. Innovations in gear and processing tend to start in New England and spread slowly north to Newfoundland, and so when freezing and filleting led to a wider utilization of groundfish, it caused a decline in the market for salt dry cod, which was still the staple of the Canadian industry. By the third decade of the century, the accumulation of 30 million pounds (13,608 m.t.) of unsold salt cod caused a decline in the industry, a loss of both boats and fishermen, and a loss of money. The introduction of new processing techniques in Canada, particularly for haddock, restored the fishery but there is still a market for salt dry fish where per-capita income limits domestic refrigeration, as in parts of the Caribbean.

Then began a steady increase in pressure on the resource. The Spanish and Portugese fleet increased in the 1930's; National Sea Products had two trawlers in 1945 and boasted 40 by 1968. The effect on the inshore fishermen, especially in post-Confederation Newfoundland of the 1950's, was marked and was not aided by the upsurge in eastern European fleets in the 1960's. By 1968 the catch was at an all time high, partly due to the inroads made on herring stocks by foreign fleets and Canadians diverted from British Columbia. Since then, and until most recently, declining catches have been offset by rising values, though a proportion of the increased value is simply the effect of inflation (but it should also be noted that statistics always quote gross landed values rather than net returns, and costs have been rising no less rapidly in this industry than others). The over exploitation and subsequent collapse of the Georges Bank haddock fishery was the stimulus leading to the first total catch limitation imposed in 1970 by the International Commission for the Northwest Atlantic Fisheries (ICNAF), the body which replaced the North American Council on Fisheries Investigations in 1950.

Response to the increasing pressure has been the development of national quotas subdividing the estimated total allowable catch among the eighteen or more states fishing the Northwest Atlantic. Management was limited initially to subareas 1-5 (the ICNAF convention area shown in Fig. 1) and later extended to include subareas 0 and 6 which, together with subareas 1-5 make up the statistical area. From 1970 to 1974, the number of such stocks under quota rose from 4 to 60, starting with the collapsed haddock fishery. This replaced the method of managing via minimum mesh-size regulations aimed at protecting young fish. Rules governing minimum fish sizes and closed areas are used in addition to mesh-size regulations and quotas at present, together with an attempt to obtain second-tier limitations to restrict catches to less than the sum of the individual total allowable catches.

## 1917-1962

The Atlantic fishery was reviewed in brief by Martin (1963) who noted that, apart from post-war peaks and a mid-depression low, landings had increased generally throughout the period. The predominantly inshore Canadian fishery prior to World War II, supplemented by offshore dory schooners seeking cod, haddock and halibut, had to yield to a towed-net operation using mainly otter trawls, which caught over half the total weight of groundfish landed in 1963. These nets also increased the catch of small-mouthed species less susceptible to capture on hook and line (flounders, redfish). The offshore scallop dragging on Georges Bank, the herring seiners and the tuna and swordfish boats all added to the greater mobility of the fishing fleet after the war. While cod landings decreased from 1945 on, total groundfish landings increased due to the addition of significant amounts of pollock, redfish and flatfish including halibut. Herring landings, though variable, maintained an upward trend from 1937 to a peak in 1946-47. After a decline, landings rose again during the late 1950's (Fig. 2).

A number of forecasts made at the time seem to have underestimated the effect of all the estimated growth in effort on the stocks. The predicted rapid increase in offshore (mobile) versus onshore fisheries duly

occurred, but efforts to ensure centralization of shore-based plants, new products, improved quality, wider markets, more efficient handling and processing methods, all leading to stability and diversity in year-round production, have been nullified to a large extent by the decline in stocks and continued problems with size of fish, quality and market resistance to some species. The need to supplement management techniques based on mesh regulations and other measures to limit the number of small fish harvested has been achieved by the introduction of ICNAF quotas, though not, perhaps, soon enough for the good of the stocks.

The development of aquaculture as a means of alleviating the pressure on the inshore fisherman is still being debated, and still for the same basic species (molluscs, lobsters, salmon) as over a decade ago, with some minor successes to show. The suggestion that Canadians enter the silver hake fishery, and develop capelin, sand launce, grenadiers, mackerel, shark, tuna and swordfish fisheries has been adopted for some species but others are still listed as potentially exploitable. The possibilities of offshore herring fishing, suggested by the arrival of the Russian fleet (200,000 tons being recorded as the Russian catch in subareas 5 in 1962) were more than justified by the increases in landings up to 1968. In that year, Logie warned that the population sizes of herring and capelin that could be used for human food rather than as fish meal were unknown, even though they would be larger than in the past as man replaced large cod as their principal enemy. Logie also noted that the development of limited fisheries for crabs and shrimp would partially offset the lack of growth potential in the lobster stock but cod landings could only be increased by replacing the foreign fleets.

## The last decade

Landings for all nations rose to a peak in 1968 (Fig. 3), largely due to the explosive development of herring fishing. A rapid decline ensued, alleviated in 1971 by an increase in Russian landings and in 1973 by landings of capelin and silver hake, increases being particularly due to Russian and American efforts. The total world catch also declined in 1969 and 1972, the first check in the continuous increase in landings since 1946.

The Canadian figures reflect the rise up to 1968, but decline more steadily afterwards, the percentage of the total catch showing especially strong declines since 1970 (falling 8% of the total in 3 years) but returning to the 20% share of the early 60's (Martin 1963). Landed values rose consistently (Fig. 4) in the Canadian fishery, but this is partially offset by the increase in the consumer price index for food, used here as a measure of inflation, which rose less steeply than the landed value of fish, thus continuing the trend noted by Logie (1968) for the period 1949-68 when landed values increased at four times the rate of prices generally.

If we examine the geographic distribution of catches in the ICNAF convention area (Fig. 5), the general trend from north to south is immediately apparent; the largest landings (and in fact those most diverse in species make-up) come from areas 4 and 5 as opposed to those in 1 and 2. The odd subdivision, such as 3K, is displaced towards the high end of the scale and some (5Y) are on the low side but the various subdivisions vary

in size and in the depth of water concerned, as well as with a host of other factors. Martin (1963) noted 35 commercial species in Newfoundland, 45 from the Maritimes and 60 from New England. The Canadian share of these catches is almost 100% within the Gulf of St. Lawrence (4R, 4S, 4T) where the foreign fleets are being phased out of the fishery within a line between Cape North (Nova Scotia) and Cape Ray (Newfoundland), as they are within the Bay of Fundy, part of 4X.

In contrast to the west coast, where salmon makes up the largest catch by weight and dominates by total value (Table 1), the Atlantic coast has many more species involved and five to six times the weight of fish landed. Because of the high value of Pacific groundfish and pelagics and despite the lower value of Pacific shellfish on a price-per-ton basis, the total landed values for Canada's east and west coast are more nearly equal.

Atlantic cod and redfish have a higher value per unit weight than Atlantic herring, but although these three dominate the catch (63% by weight), scallop, lobster and cod account for 51% of the landed value and herring adds a mere 7% more (Fig. 6). The rank order of some species (Table 2), both by weight and total landed value, has remained strikingly constant over the last decade, despite fluctuations in each fishery. While lobster and cod always occupied first or second place, scallops varied from third to sixth place in terms of total dollar value. Small flatfish have always made up a significant proportion of the landings, and have tended to make up an increasing share of the landed value in recent years. Redfish have risen steadily from fifth to second in weight and from eighth to fourth in value, largely owing to the technique of midwater trawling which has enabled exploitation of a previously less utilized but slow growing species.

While cod and haddock landings show a decline over the period 1964-73 (Figs. 7, 8), redfish increased (Fig. 9). Small flatfish landings increased until 1970 but have fluctuated since (Fig. 10). Herring landings, as previously indicated, rose dramatically from 1964-68 and fell from 1968 to 1973 nearly back to their initial level (Fig. 11). Mackerel landings rose in the second half of the 10-year period (Fig. 12) but lobster catches fell steadily from about 45 to 35 million pounds (Fig. 13), though the supply averaged 40 million pounds in 1949-68 (Logie 1968) during which period the price doubled.

## Employment

In Newfoundland, which has the largest population of fisheries workers (including processors and fishermen) and the highest proportion of the total labour force so employed (14%), the number of employees rose to a peak of 26,000 in 1964-65 but had returned once again to the earlier level of 20,000 by 1972. The Maritimes employed some 6% of their total labour force of 491,000 in fisheries in that year, the actual number of workers having fluctuated around 30,000 for the previous 15 years despite losing ground to the slowly increasing work force.

The number of fishermen on the Atlantic coast of Canada fell from 48,000 in the middle 1950's to around 40,000 in 1972. Newfoundland claimed 14,500, Nova Scotia nearly 12,000, New Brunswick and Quebec about 5,000 each and Prince Edward Island a total of 3,200.

Of the total number of fishermen only some 5,500 work for 10 months or more, about 14,000 for 5 to 10 months, the remaining 20,000 work less than 5 months. While nearly 40% of the Nova Scotian fishermen are employed full time, less than 5% of the Newfoundlanders are full-time employees.

The total number was distributed between the various fisheries in 1972 in much the same way as it has been for the last decade. The majority are in the groundfish fishery (21,600), followed by lobster fishermen (20,000) and small pelagics (17,000).

Vessels

In 1972, there were 251 boats of 150 tons and over, 3,200 between 25 and 150 tons and 25,400 vessels of less than 10 tons in the Canadian Atlantic fishery. The number of small craft has fallen by 10,000 since 1964; the middle range has increased by 1,000 and the largest by more than 100. During the period the total value of the vessels has more than doubled, of course, despite the overall loss of boats. The value of fishing craft has risen from $33 million (1955) to $165 million (1972) though some of this must be attributed to changes in the value of the dollar.

Earnings

In Nova Scotia, the major fishing province of the three, a boat captain's net earnings went up in proportion to the size of the vessel, ranging from about $4,500 (39' lobster boat) to $32,600 (155' steel stern trawler) in 1973. The latter figure has risen from $18,000 in 1967. The deckhand might net $4,000 on a 44' longliner or $9,500 on a 155' vessel, an increase from $5,000 in 1967 on the latter.

Less attractive figures are evident when the ultimate profit/loss values are examined (Table 3) for a sample of 35 Nova Scotian vessels. On average, the larger boats in the sample have lost money since 1967, recording their first profits in 1973, but all of the 120' class continued to record losses. In contrast, the smaller vessels have usually been profitable with some bad years (such as 1973 for longliners).

Gear, bait and fuel have all increased in cost, as well as salaries. The cost of gear in proportion to 1,000 pounds of landed fish varies from $3 to $6 for the draggers and large trawlers, $10 to $14 for the longliners and lobster boats to a massive $173 for scallop drags. The cost of gear per hour fished, however, rises to $12.65 in the largest vessels from $1.73 in the lobster boats, though the latter and the longliners have to add the cost of bait ($1.40-$7.00, increasing with size). Fuels and oils ranged from 3.4% of the landed value for lobster boats to 8.9% for the largest vessels, again increasing with size. In terms of cost per day at sea, the values range from $7 for the smallest boat to $141 for the largest. It is worth noting that the large east European vessels (the *PIONERSK* is 538' long, 70' wide, takes over 9,000 tons of herring and carries a crew of 258; some refrigerator trawlers are 356' x 52' with a crew of about 100) are State subsidized, fishing for protein rather than profit.

## PROVINCIAL FISHERIES

As the provinces vary in size, location in relation to the continental shelf, and population, a straight comparison of fish landings by province is necessarily an oversimplification. However, these figures will express the relative importance of various species in each province and their proportional share of the national catch.

### 1973 landings

While Newfoundland and Nova Scotia land about the same quantity of fish, and each lands more than the other three provinces combined, the proportion of valuable species such as lobster, scallop and haddock ensures that the landed value of the fishery in Nova Scotia is much higher than that in Newfoundland (Table 4).

Newfoundland was responsible for twice as much of the Canadian cod (Fig. 7) landings in 1973 as Nova Scotia, which in turn landed twice as much as Quebec. Small flatfish follow a similar pattern (Fig. 10) only with the differences more strongly emphasized. These two, together with redfish (Fig. 9), dominate the Newfoundland fishery, which also accounts for the bulk of the (smaller) Greenland turbot, capelin, seal and shrimp catch.

Nova Scotia dominates the haddock landings (Fig. 8) but shares equal status with Newfoundland in redfish catches. The province also has the largest share of mackerel, but lobster (Fig. 13) and scallop are responsible for about half the total landed value of its fisheries. Hake, pollock and seaweeds add diversity to the list for Nova Scotia, which reaches 14 species at more than 10 million pounds a year.

The herring catch, first in volume but sixth in value in Nova Scotia, is about equalled by that of New Brunswick. Newfoundland also has a substantial herring fishery. New Brunswick also has the lion's share of the tuna landings, largely dependent on distant water fisheries, and the queen crab catch.

Prince Edward Island depends almost entirely upon its lobsters for a fishery ($7.5 of $12 million) with Irish moss and redfish each adding another $1 million a year. The largest Canadian oyster catch is derived from the island, though it is not in the same class as a dollar earner as the species already mentioned.

### Recent history

The dominance of lobster and scallop over cod and haddock in Nova Scotia was already established in 1965, and the absence of a significant contribution from scallops is the only change observed in values for 1950 and 1960. These remain the "big four" in landed value in the province despite the decline in haddock landings and changes such as the increased catch of redfish, the closure of the once significant swordfish fishery owing to mercury contamination, and the rise and fall of herring landings.

In New Brunswick, lobster has been the most valuable fishery since at least 1961, briefly losing first place in landed value to the huge herring crop of 1968 and again in 1972. Herring and cod accounted for second and third places in the period 1961-67, but cod fell to fourth place in 1968 (with the influx of tunas in that year) and was displaced to fifth rank in 1969 after lobster, herring, tuna, crabs (mostly queen crab) and redfish (seventh in 1965, fourth in 1966). Tuna maintained third rank and crab thereafter retained fourth place apart from 1971, when it dropped to sixth. Redfish remained about as valuable as cod from 1970-72 but was worth twice as much as cod in 1973, less in 1974.

Small flatfish as a group were fourth in rank by value in New Brunswick fisheries in 1961, dropping steadily in rank until they dropped out of the first seven places in 1968. Salmon placed fourth or fifth in 1961-67, dropped to seventh in 1968-69 and has now been subject to a ban on commercial fishing. Haddock has also progressively declined in value landed, since it held sixth or seventh rank in 1961-67.

The most serious aspect of the New Brunswick fishery record is the decline, year by year, in total landings, down 17% in 1971, 12% in 1972, 20% in 1973, 14% in 1974. Groundfish volumes dropped 6% per year but a sudden 40% in 1974, a year with a market slump to add to the difficulties. The herring decline in the Gulf in 1972 was matched by some increase in the Bay of Fundy, but such "book balancing" does not serve to alleviate local problems. Attempts to develop rock crab, eel and sea urchin fisheries as well as aquaculture, particularly with seaweeds, are being made.

In Prince Edward Island lobster is indeed King (Table 4) with a landed value of \$3.2 million (1963) and \$7.5 million (1973) of a total landed value for all species of \$4.6-12.4 million for the same periods. The oyster, in second rank in 1963-65 (\$0.4 million) dropped in relative importance to eighth or ninth position by 1972-73, the landed value having about halved despite inflation. Cod rose from third (1963-65) to second place in 1966, dropped to sixth in 1970-71, and had returned to fourth place by 1973. Scallops rose to third or fourth rank in 1968-72, dropping back to sixth in 1973, peaking at \$0.6 million in 1970. Redfish gained in importance from its appearance in the figures in 1966 to reach second or third place in 1971-73, reaching the million dollar mark in the last year. Mackerel has usually held fifth to seventh rank in island fisheries, but herring dominated only briefly in 1970-71. Small flounders and hake often occupy the lower half of the list of "top seven".

There were 3,400 fishermen on the island in 1962, about the same number in 1972, none of them truly full- time. There were 786 people involved in processing in 1971. While a total of about 2,500 boats was involved, only 15 of them were offshore vessels working out of Souris and Georgetown. New Brunswick boasts about 500 full-time fishermen out of a total of 5,000, about 2,500 of whom work from 5-10 months. In Nova Scotia there are 3,200 full-time fishermen and 11,000 in total, with a further 4,000 involved in processing (1971 data). The number of maritime fishermen remained fairly constant at about 30,000 from 1958-72, but has declined in relation to the total employment picture. Estimates of processors in New Brunswick range from about 3,000 to 7,000, with 10% of the plants employing

half of these. The majority of workers are employed from 6-7 months a year. The distribution of Nova Scotia fisheries is summarized in Fig. 14.

## THE PRESENT PICTURE

The severe declines in landings of recent years have sharply focussed attention on the efforts of fisheries scientists and managers to obtain agreement of the fishing community for relief for the hard-pressed stocks, and in 1975 a series of successes can be recorded.

Following the failure of the 1975 ICNAF meetings to agree on a reduction in quotas by non-coastal states of 40%, a two pronged effort was launched to obtain this at the special meeting in late 1975 and to obtain guarantees of adherence to quotas by member states. The evidence of overfishing led to a closure of Canadian ports to the huge Soviet fishing fleet, followed rapidly by intense bilateral negotiations. At the satisfactory conclusion of these, compliance with the quotas having been agreed to in addition to settlement of gear damage claims, the USSR supported claims by the USA and Canada for an increased share of the quotas and the simultaneous reduction by 40% in foreign nation quotas. Continued efforts via ICNAF negotiations are achieving most of the benefits to be gained via Law of the Sea negotiations aimed at giving the coastal states sovereignty over the fish stocks up to 200 miles from shore, hence minimizing the need to declare such a limit unilaterally.

## ENVIRONMENT AND FISHERIES

Our environmental concerns have evolved rapidly in the last decade, shifting from an awareness of the damage caused by the so-called "point source" contaminations of industrial and domestic waste effluents, to the broader issues of the total effect of land use on water systems and the atmosphere. We have become aware of the fact that interference with nature by man has reached the point where, aided by technology, the human race is capable of affecting very large sectors of the globe, if not the whole biosphere. That term is used to refer to the whole of the thin living skin that exists in and on the soil or water and in the air, forming a layer often less than a mile thick between the atmosphere (itself a thin covering on the earth) and the deeper layers of the rock and soil of the terrestrial crust. The human race is no longer seen as an independent unit, making use of some specific plants and animals, destroying some in the pursuit of economic gain, but being ignorant of the vast majority of living things. It is now recognized as an intimate part of the biosphere, affected by living things of no direct commercial value as well as affecting them. The intellectual step involved in accepting this is as profound as the earlier step most of us have taken in our evaluation of man's place in the universe in recognizing our evolutionary kinship with the animal world, and it is proving just as difficult to adjust to. Our understanding of this relationship is overshadowed by another fact that we are gradually acknowledging. Human population increase has reached the point where for every person alive today there will be two by the end of the century, but the world is finite, with limits to each exploitable resource. Demands upon these limited resources are growing, not only because of the population growth but also because of the spread of technology, highly sought after as the panacea for the real and supposed ills of the non-industrialized world. Industry, after all, consists of the invention of

ways in which the relatively puny human frame can accomplish single-handedly feats that would require an army of slaves -hence it is easy to understand the way in which our effective population is increased via our non-living additional selves. The supply of safe disposal sites for waste is also limited, and our waste disposal technology has usually been allowed to lag behind our exploitation technology. In fact, our wastes have often become mixed up with our resources to the point where we are literally fouling our own nests, something that all living things avoid or they become extinct.

To turn to the implications of our environmental concerns to fisheries management, we need to be aware of two sides of the issue. Most of us will understand the need for care in future disposal of wastes at sea, long thought of as the one totally safe and ultimate disposal site for explosive and toxic substances. There are however a host of more subtle, indirect means of affecting the oceans via waste effluents. Disposal of industrial, domestic and agricultural wastes in rivers so obviously affects freshwater fish and migratory species like the salmon and shad that there is no need to dwell on the point here. We should note, though, that most rivers eventually transport a part of their waste burden to the seas to add to the load entering more directly from the many coastal cities and ports as well as the materials dumped at sea by barges.

This continuous flow of wastes has its greatest impact on coastal systems, especially where inlets and bays slow down the flushing action of tides and currents and where the continental shelf is extensive. These are precisely the areas which we depend upon for our fishery resources, the wider expanses of open ocean containing far less fish life and being far more expensive to exploit. The impact of wastes on such fishery resources as clams and mussels is obvious where their exploitation is restricted due to contamination of the beaches by sewage or toxic wastes from mining, paper production and other activities. There are many shores where exploitable species no longer exist, and may not have existed in living memory, where one human activity has effectively suppressed others based on living resources. The direct forms of pollution that we are familiar with in rivers and estuaries may not have too much impact on the high seas, of course, but there is the problem of transfer to and accumulation of toxic materials such as the heavy metals (lead, mercury, cadmium) by large or old carnivorous fish. Some materials can be deposited in the fat or bone tissues of an animal, or in plant tissues, where they are harmlessly stored rather than being excreted, but they can be mobilized by being passed from species to species as one preys upon another. High seas fish such as the tunas and swordfishes may contain enough of such materials (some of it derived from natural sources undoubtedly) that if enough is eaten with sufficient frequency severe medical complications can arise in the human consumer. Careful limits are placed on certain fish products that contain such contaminants.

Concern has been expressed about the effect of accidents to large vessels transporting dangerous cargoes in bulk, but this is often based on the interpretation of laboratory results in terms of large ocean systems. It is one thing to demonstrate the depression of photosynthesis by pesticides in a laboratory flask, but quite another to be able to predict with any accuracy the effect of an accidental spill of millions of gallons of it in an open sea situation.

Floating tar balls have been discovered in plankton tows in the open ocean, and all kinds of floating trash have been observed far from shore by lone sailors. None of this sad debris has yet been shown to be more than an aesthetic problem to date, but the effects of oil particles may well be subtle and undetected.

The major impact of hazardous cargo loss to date is the much publicized and clearly visible oil spill that reaches the shoreline. The beach fauna may be damaged for many years, sea birds are killed, bathing facilities spoiled, and fishery products such as lobsters in seawater pounds may be tainted and may eventually die while being held in an attempt to allow the taint to clear. Again, the damage due to oil spills is too well documented to require detailed review here.

More subtle effects on our aquatic systems may be brought about by our day-to-day activities that at first sight would not be considered to be damaging. The pattern of land uses from farming to foresty, housing, draining and filling, has altered the depth at which the ground water lies beneath the surface and the seasonal pattern of runoff, especially where practically every available river has been dammed for production of electricity. The cumulative effects of all these alterations in a drainage as large as, say, the St. Lawrence River system have yet to be fully understood, but it could possibly affect the timing of seasonal growth of algae and this, in turn, may have a critical effect on the success or failure of a year-class of a commercial fish species. The effect of subtle environmental change and the effect of fishing pressure may easily be affecting stocks simultaneously, so that the cause of a decline in a coastal resource base becomes the subject of protracted debate.

The most recent extension of the environmental problem which is or should be of concern to fisheries biologists is the insatiable demand for animal protein in a world where the total food supply is at least precarious from time to time and place to place, and where animal protein is already demonstrably deficient in many diets and is becoming increasingly so. In a growth-oriented fishery many companies, and indeed many nations, strive to increase their share of the market by controlling more of the resource. While this competition may be beneficial where the volume of resource used is unchanged, the growth of all or most of the competitors leading to an increase in the amount of the resource used will inevitably stress the resource supply end of the system. The problem of estimating the total supply of fish in the ocean is referred to elsewhere in this article, but it must be accepted that there is an ultimate limit at least in terms of the fishery as it is currently operated. Eventually we may pass from the hunter-gatherer phase of the nomad to the settled life of the farmer in our life on the sea, just as we once did on the land, and until then we must avoid irreversible changes in the estuaries and bays and enclosed seas such as the Baltic and Mediterranean from over-exploitation of living resources, careless extraction of non-living resources and over-utilization of the waste-absorbing capacities of such systems. Management of fisheries will require strict attention to all three of these concerns if we are to maintain a viable fishery now and retain the option of extensive mariculture in the future. The pressures of vested interests on managers will predictably increase as population pressures build.

## FISHERIES RESEARCH

Prior to 1899, limited studies of marine biology were carried out on Canada's east coast by independent investigators, both professional and amateur. In that year an appropriation of $7,000 from Parliament made possible the construction of a portable laboratory and the development of an organized research program to be carried out by experienced investigators. By 1908 Canada's first permanent base for marine research on the east coast was established at St. Andrews, N.B.

Since then a gradually expanding research program has been developed at St. Andrews and later at the Halifax Laboratory, the Marine Ecology Laboratory at Dartmouth, the Biological Station at St. John's, Newfoundland, and elsewhere, aimed at assisting commercial and recreational fisheries. During the past decade, increased emphasis has been placed on work dealing with the quality of the aquatic environment due to the overall significance of pollution research to the Canadian economy and the Canadian way of life.

Formerly operated by the Fisheries Research Board of Canada, the laboratories are now part of the Public Service of Canada within Environment Canada (Fisheries and Marine Service). The thirteen laboratories are divided by geographical region and are answerable to local Directors General who control both research and operations. The attached chart shows the major organizational arrangements for research laboratories on the eastern seaboard.

In 1974-75 the Atlantic Region laboratories concerned with fisheries (excluding the Atlantic Oceanographic Laboratory) employed 433 staff and expended $9.5 million. This included the operation of three major vessels, the *CAMERON*, *PRINCE* and *HARENGUS*, plus a number of smaller vessels associated with individual centers. The number of scientists concerned is about one quarter of the total, the rest being the technical and support staff needed to maintain a sampling programme from a large geographical area with poor transportation facilities (related to both geography and climate), with many widely dispersed, small fishing ports, and with six separate physical research centers and a large number of field centers ranging from the Ellerslie laboratory (Prince Edward Island) to short-term field camps. The area in which scientific work is done ranges from headwater streams deep in the New Brunswick forests to tuna stocks on the high seas.

Much of the work is reported in the Journal and the Bulletins of the Fisheries Research Board, the Technical and Manuscript Report series, Fisheries Fact Sheets, Circulars and Annual Reports of the stations. Publications by the International Commissions, special task forces and proceedings of government meetings also contain much of the work of the research staff. Other scientific papers appear in non-government journals and in book form as in any other scientific enterprise. The research achievements of the FRB have been summarized by Ricker (1975). The following data (Part II) are derived largely from the work of the research branch, especially from that of the St. Andrews Biological Station and the St. John's Biological Station.

- Deputy Minister, Environment Canada
  - Fisheries and Marine Service, Senior ADM
    - ADM Ocean and Aquatic Sciences - Ottawa
      - Director General, Atlantic (Bedford Institute, Halifax)
        - Director, Atlantic Oceanographic Laboratory (Bedford Institute)
        - Director, Marine Ecology Laboratory (Bedford Institute)
    - ADM Fisheries Management
      - Director General, Maritimes (Halifax)
        - Director, Resource Services (Halifax)
          - St. Andrews Biological Station
          - Resource Development Branch
        - Director, Industrial Services (Halifax)
          - Halifax Tech. Laboratory
          - Industrial Development Branch
      - Director General, Newfoundland (St. John's)
        - Director, St. John's Biological Station

## FUTURE PROSPECTS

### Limits to growth

It is little more than a decade since Martin (1963) was able to predict a prosperous growth in our fisheries based on modernization, centralization, economies of scale and a continued emphasis on capital rather than manpower. The inshore fishermen had, it is true, suffered losses in relation to the development of offshore fishing, but the thinking of the time would have identified such trends as normal and progressive. In a world faced with the realization of ultimate limits to our resources and of the problems already caused by overpopulation, we need to re-evaluate many of our basic premises.

Fishes currently supply 40% of the total human protein input, and a massive 64% of the animal protein. The truly dominant position of fish in the diet of Asians and others will rapidly be appreciated when one considers that North Americans and, to a lesser extent, Western Europeans prefer to eat red meat, and much of the fish they do eat has been converted into chicken and other forms via fish meal, a process which keeps the price of the fish so used relatively low and which wastes the bulk of the nutritional value of it in the conversion process. With only 20% of the world's population, the affluent nations utilize half the world's fish supply in one form or the other. The disadvantaged half of the world's population obtains only a quarter of the fish catch, and the rest is utilized by eastern Europe and China. In the last instance the bulk of the fish is supplied by fish farming, often linked with rice culture and the use of sewage as a fertilizer.

The percentage of fish in human diet is increasing at twice the rate of population growth. The global rate of population growth will lead to a doubling of world population in 35 years, and little can be done now to prevent this, because most of the children who are going to contribute to this increase have already been born - there is no rapid solution to the problem. By 1985 the world will probably need 89 million metric tons of fish, calculated by extrapolation from existing trends. By 2000, the weight will have risen to 127 million tons. By that time the Asians will need 9 million tons just to maintain the present rate of supply (Robinson and Crispoldi 1975).

The maximum sustainable yield from the oceans has been calculated to be about 100 million metric tons per year, or about twice the quantity currently supplied, and so it seems that world food shortages are not likely to be overcome by turning to the oceans, as optimists suggest. There are, however, both pessimists and optimists among those scientists who are prepared to indulge in futurology. Some fisheries scientists doubt that we will, in fact, achieve a supply of 100 million metric tons at all. The recent declines in the total world catch figures suggest that something serious is happening, as these are the first declines ever to interrupt the steady, almost exponential, rise in world landings. When we once become adjusted to the concept that this increase cannot go on forever, the first wobble in the curve is bound to be disturbing, coming as it does when so many other basic resources are reckoned to be drying up, at least in the foreseeable future.

The even more serious declines in the Northwest Atlantic are in themselves cause for alarm, and a close inspection of the fishery and of our assessment and management procedures suggest to Edwards and Hennemuth (1975) that our estimates may still be biased towards optimism.

Our estimating procedure is based largely on samples taken from the fishing fleet itself and our fishery scientists will be the first to agree that there are too few samplers and that the samples are not always obtained in a manner that would avoid bringing bias into the results obtained. With so many nations involved whose ports of landings are so distant from Canada, even the most honest attempts to provide accurate statistics leave much to be desired, without considering the unreported discards - fish thrown away at sea as being unmarketable at home ports - or the catches that are in excess of national allocations. Our estimates of the effort expended by the fleets in order to obtain their catches are much less precise than the estimates of the catch, of course, as both ships and fishermen vary in their capacity to catch fish, and there are no accurate records of days fished by all the vessels involved. Other factors tend to lead to excessive optimism about the maintenance of landings, some of them related to the expanding nature of the fishery. Our stock estimation procedures depend on obtaining good time-series data on catch per unit effort, and so it takes a minimum of 3 years to establish a preliminary estimate of a stock. When a new stock is utilized, catches per unit effort are bound to be high, and will increase (or at least not show as rapid a decline) as the skill of the fisherman increases. A new fishery is often based on a single successful year class. As a result of ideal conditions for reproduction and survival of an extraordinary number of young, a single generation of a particular species may provide most of the individuals for as long as it takes those fish to mature, age and die of natural causes if not harvested. Such a year class naturally attracts extra fishing effort and good catches are bound to raise hopes that the high level of yield can be maintained. Changes in environmental conditions can cause periodic declines in otherwise productive fisheries, of course, as happened in the Peruvian anchovetta fishery recently. In a mixed fishery, the fleet can often modify its fishing to swing effort from one species to another once the initial stocks are depleted or as good year classes are exploited or environmental conditions change. Such shifts, as well as diversification of the catch, are apparent in the Northwest Atlantic, as documented in the history of the last decade. Many of the species now being used to replace the traditional forms also happen to be long-lived, slow-growing species for the large part, which means that recovery of stocks from which the older, larger and often more valuable specimens have been removed, takes longer than it would in other species. In the anchovy, the lag time involved in obtaining the natural increase in recruitment, due to fishing, may be only one or two years, but for the flatfish and redfish we are now exploiting to make up for declines in cod and haddock, there may be a 10-year lag.

Now that it is no longer possible to switch from one stock to another picking up the easy gains from virgin stocks, the true state of many stocks has been recognized in the Northwest Atlantic. We now have quotas on all stocks and even precautionary quotas established where there is insufficient data so that new fisheries are not allowed to develop with the explosive character which has been witnessed to date. However, the dismal landings

of the last few years, now down to 40% of 1968 levels, suggest that we may have been optimistic in our estimates of stocks available for exploitation.

While our estimates of stock may be overly optimistic, our acknowledgment that they are, in effect, best guesses also allows us to consider that they may be pessimistic, especially when used to calculate a value for global ceilings on protein supplies from the ocean (Dickie 1975). Two research endeavours may lead to more reliable estimates of our expectations from nature. In the first, the development of electronic devices to assess fish stocks could yield accurate, instantaneous measurements of the fish actually present in the ocean as a survey vessel cruises over the fishing grounds. There are difficulties to be overcome with this, of course, such as discrimination between species in groundfish. The calibration of the electronic devices is difficult to achieve because fishing (the only other available sampling technique) is selective. A combined fishing and electronic survey technique is now being developed. The second scientific development that may at least give us an independent estimate of yield is derived from the estimation of energy budgets in ecosystems. It is possible to calculate production rates for plant material, and to measure the efficiency of conversion of this material to animal tissue, first by herbivores, then by carnivores. Such budgets may be built up species by species, assuming that interactions between species in nature do not invalidate the method. They may also be estimated by measuring a few total ecosystem parameters that may enable us to obtain at least coarse estimates of total production. Such estimates are usually made in terms of energy or perhaps as organic matter. As we utilize, or even overuse, preferred fish stocks, the food that was once used by those fish is available to other forms or to man himself. On land, the farmer once destroyed many predators to protect his livestock, so that now we are forced to replace the wolf and the tiger, the eagle and the hawk, in order to keep down the numbers of animals that our competitors once ate. In fisheries, we should be able to harvest the species which were the food of the fish-eating species we once caught in large numbers, and we already find ourselves utilizing capelin instead of waiting until they are converted to cod or salmon. In addition, we see suggestions that lower forms of life, such as benthic invertebrates and euphausid shrimps, be harvested more intensively, but while there may be 100 times as much benthic life as fish life on the sea floor at any given time, a wholesale harvesting of this potential resource may well disrupt the ecosystem severely. Even if it were to be harvested, however, the marketability of such forms would pose very great problems. While in theory the protein production of the sea must be expressed in some form, even if we harvest all the best fish and destroy the stocks, the form in which that protein will be found as a result may render it useless without costly research into new products.

A fundamental problem which may turn out to be a blessing in disguise in preserving stocks is the question of continued oil supplies. Oil is the fuel used to power fishing vessels, as well as to lubricate them. It also provides the raw material for the synthetic fibers used in modern nets and ropes, and is the basis of plastics that are widely used in peripheral equipment. Oil also provides the mainspring for the complex technological society that constructs vessels, gear and equipment and transports the components to the assembly point. There is general concern about the future

pattern of society in what some are already calling the post-industrial age. In fisheries it would be possible to return to traditional methods and materials, but the volume of fish harvested would decline rapidly and the world protein supply would be drastically reduced. Fish stocks would, of course, recover as the energy used in the harvest were minimized. Technology is already being held in check in some fisheries in order to maintain the population of fishermen, and the same interpretation applies to sport fishing, of course, where the gear limitation provides much of the challenge. If the east European fleets were fishing for a profit off our coasts, the rapid increase in the costs of fuel plus the decline in stocks would lead to a lessening of their activity and relief to Canadian fishermen or at least new opportunities for the coastal state. This benefit may not be derived as quickly as we would anticipate because of the subsidized nature of that foreign fishery.

New opportunities

Despite conflicting reports about the long-term health of our fishery, the severe declines in landings of recent years, plus the continued attempts to divert effort from one resource to another suggest that there are few, if any, major untapped resources available for exploitation in the maritime region. In a recent government-industry seminar on the utilization of Atlantic marine resources (Kinloch 1974) a few species were singled out for potential development. With mackerel, the problem seems to depend on marketability of this rapidly spoiling species. Dogfish is not marketable at present for other reasons. With capelin there is a need to look at the available stocks very carefully in relation to the huge increase in catch the fishery has sustained in the last two or three years (limited by precautionary quotas) before there is any Canadian expansion. In many instances, the foreign fleets will have to be displaced proportionally to the increase in Canadian interests. This would be true for silver hake, for instance, presently utilized by the USSR. Technology could assist with the development of deep water fishing (for grenadier for example, or squid) or the development of new processing methods and products (for crabs, dogfish, skates and mackerel). Whelks, mussels and clams and even sea urchins are capable of producing a larger share of our marine harvest, and these invertebrates and others such as quahaugs and Iceland scallops, fall securely within our national jurisdiction as being creatures of the continental shelf and thus protected by International law which recognizes proprietary rights as being vested in the coastal state. While development of these resources may go a long way to alleviating economic problems among the inshore maritime fishermen, they are not going to solve the world's protein problems, despite the fact that the marine benthos may be a hundred times more abundant than the fin fish which depend upon it for food.

The wholesale harvesting of the existing biomass of non-commercial species presupposes there is available some means of using them which is more efficient and, more significant perhaps, as dependable through time as the natural system of harvesting the fish which feed upon them. Until we understand the ecosystem better, we are likely to create many problems by interfering in any major way, as evidenced by our often tragic accidents with ecological manipulations.

Two other possible avenues of development could be explored. The Canadian fishery is and always has been export-oriented, the major markets currently being in the United States. Foreign ownership of Canadian processing plants and direct or indirect foreign ownerships of the fishing fleet is also a matter of some concern when we are trying to negotiate sovereignty over our resources. A positive effort to improve quality, to penetrate the gourmet food market and to overcome the transportation problems that are common to all Maritime and Newfoundland industries might lead to the establishment of a more secure Canadian market in the major population centers. The introduction of various ethnic groups via immigration has made many Canadian cities more catholic in their tastes than at any time in the past.

The problems of the processing industry could perhaps be met by increasing our share in processing rather than simply supplying raw materials. If markets in Canada were open to foreign fleets the volume of discarded fish, which has been estimated to be as high as 40% of the catch of some western European fleets, might be diminished. This would lessen the wastage of valuable protein and prevent the exclusion of these often unreported catches from the calculation of total allowable catches for subsequent years.

From the Canadian viewpoint, the foreign fleets have not only made inroads into stocks that we historically utilized, especially inshore, but rapidly developed fisheries on species that we might now be considering as providing new opportunities. We seem to import both fishing techniques and processing methods from Europeans, and in a number of instances we have recognized an opportunity only after someone else has already moved into the area. This should not surprise us when we compare the food needs of Europe with the availability of agricultural land in contrast to the North American situation where population is only just beginning to stress resources. As North America provided a population safety-valve for Europe, the west provided the same safety-valve for us until very recent times.

The eastern seaboard has been used as a source of food for Europe and the Caribbean for so long that it would be simplistic to imagine that a relatively young nation, newly freed from its colonial mentality, could rapidly displace the other nations within a few short years. Replacement of foreign effort by Canadian vessels and fishermen would provide one avenue for growth in our industry, and this tendency can be seen in the gradual move from coastal state preference in quotas to the recognition that the coastal state might take 100% of the available surplus from any stock if it has the capability to catch it. Present management efforts are preventing further expansion of foreign activity, reducing overall effort in an attempt to allow stocks to recover, and may succeed if our stock estimates are reliable and the participants in this group-management exercise abide by the regulations and adhere to the need to supply statistical information rapidly and accurately.

Law of the Sea

As world population increases and technology extends human ability to exploit resources, new conflicts arise which come to be regularized by law. The law regulating the use of the high seas for navigation, both commercial and military, research, mining and fishing has depended on the concept of freedom of the high seas apart from coastal jurisdiction over a

narrow strip. This strip was initially set at the prevailing gunnery range of 3 miles, but has been extended to at least 12 miles by most nations and to 200 miles by some, such as Peru, Chile and Ecuador who took this step as early as 1952. In 1958, the Geneva Conference on the Law of the Sea established four conventions, ratified between 1962 and 1966, but left unresolved major items such as the breadth of the territorial sea and the right to establish fishing zones beyond it. The alternative 6- or 12-mile limits were discussed again in Geneva in 1960. The question of the physical resources of the shelf was resolved by the continental shelf convention of 1958, though in an open-ended manner that modern technology quickly made redundant, as it permitted the coastal state the monopoly of the shelf to a depth of 200 meters or beyond to where depth limits the capability to exploit the resources. Animals such as the lobster have since been claimed to be creatures of the shelf and so protected.

In 1974, the Law of the Sea Conference was attended by 5,000 delegates from 150 nations, world politics having generated many sovereign states in the 20 years since the earlier sessions. The discussions continue, and even when concluded, any conventions would have to be ratified by a majority of the participant states to become law. Hence the pressure to declare a 200-mile limit for fisheries purposes seems attractive to a considerable lobby concerned with the drastic declines in the fishery on the Atlantic coast, as it might seem to short-circuit the protracted legal process.

A 200-mile fishery limit is sometimes seen as the solution to the problem of foreign fishing effort, which is held to be responsible for the declines in stocks recorded since 1968, and the decline in size of fish caught in many species. However, such a broad zone of national sovereignty would have to be policed if it were not established by mutual agreement, and this would strain our already limited inspection capability. Also, the Canadian fishing fleet is not in a position to replace the foreign fleets at short notice, and the world protein demand is such that we could not allow stocks currently used by Europeans to lie fallow, much though this would benefit conservation of the resource. Current management efforts via ICNAF have steadily achieved recognition of the coastal states' rights in the future use of the fishery resources of the continental shelf that have been held to be common property until recently. In late 1975 the foreign fleets accepted major reductions in quotas, while according Canada some increases and the tacit right to extend her fishery up to the total quota to be allocated wherever that is likely to occur. As in so many legal debates, the conventions that will eventually be ratified will probably be acknowledging the de facto establishment of mutually accepted rules.

There are some Canadian fisheries interests that have special views on the Law of the Sea debate, and among them are those interested in both recreational and commercial salmon fishing, those involved in Canadian fisheries in zones where the US/Canadian border is not fully established and those concerned with distant water fisheries beyond our own 200-mile limit.

Canada is involved in few fisheries outside her own 200-mile potential limit, but these few are or could be significant dollar earners. Off our own shores the great undersea banks on the Atlantic coast reach beyond 200 miles from shore off Newfoundland, reaching as far as 625 miles if we

consider the Flemish Cap, a bank separated from the other banks by a deeper channel. This extraordinarily large area of distant shelf supports a fishery for a number of small flatfish and some other groundfish totalling some 130,000 metric tons, worth (at only 7¢/pound) some $20 million, which fishery we would wish to see included in any sensible management scheme for the area's fisheries. To the south of the Atlantic region the immensely valuable fisheries of Georges Bank off New England are also within 200 miles of south-west Nova Scotia, and the offshore lobster and scallop fishery, and red crab resources of the area will have to be considered in detail within any general agreement.

The equivalent Pacific problem is the halibut fishery, in which Canadians fish in American waters. The salmon species are also involved in the debate because of the geography of the Pacific coast islands and the final settlement of the position of the lines deciding the US and Canadian sea bed on both shores will surely be a part of any final agreement.

Our only truly high seas fishery is for tunas, which are caught off Africa and on both sides of South America. The coastal states in these instances are prepared to conserve such fish stocks in order that they might develop a fishery themselves or to obtain royalties from foreign nations wishing to fish there. Some, such as Ecuador, already try to police a 200-mile zone declared unilaterally. This Canadian fishery, however, supplies two processing plants, one on each coast. The Atlantic plant, in St. Andrews, N.B., is American owned. Few of the crews of the tuna boats are Canadian, but the processing plants provide local employment.

The Canadian position vis-a-vis foreign fleets off Canadian shores has to be developed with proper regard for the interests of those offshore fisheries in which we are the foreigners.

# PART II

## THE GROUNDFISHES

### Cod *(Gadus Morhua)*

Landings of Atlantic cod have been second only to herring on a volume basis on the east coast of Canada since 1967 and second only to lobster in landed value. The cod was found in such numbers on the Grand Banks of Newfoundland that it constituted one of the principal inducements which led England to establish colonies in North America. Since then it has been a staple item in the diet of maritime people on the east coast and has constituted a major export item to Europe and Central America.

The cod is found on both sides of the Atlantic with a range on the North American side from Hudson Strait to Cape Hatteras.

Of the ten identified stocks, by far the largest is the Labrador-East-Newfoundland complex which migrates north with age and seasonally inshore to feed. Cod spend the winter in deep, warm water below the cold layer often 100 miles or more from the coast. This stock is replenished by eggs and larvae which drift southward on the Labrador current, and it formerly supported a large inshore fishery which is now declining drastically with the build-up of the offshore fishery.

The Grand Bank stock migrates over the banks in summer - but not inshore - and concentrates on the southern Grand Banks in winter. The St. Pierre Bank stock moves inshore where it supports an inshore fishery in summer and concentrates offshore in winter. The West Newfoundland-Quebec stock (Fig. 15) migrates as far south as Burgeo Bank in winter and returns in summer.

The Southern Gulf stock migrates to the edge of the Laurentian Channel in winter from Bird Rocks to the northern edge of Banquereau in depths of 140-170 m (80-150 fathoms) and returns in summer.

The Banquereau-Sable Island stock concentrates along the edge of the offshore banks in winter and migrates over the banks in summer, some moving inshore and as far north as Sydney Bight and the southern Gulf of St. Lawrence. The Browns-LaHave Banks stock remains on offshore banks all year. The Nova Scotia inshore stocks, extending along the Nova Scotia coast to the west of Cape Breton, are largely sedentary and do not mix with the migrating offshore stocks.

The Georges Bank stock remains on the banks the year round. The Gulf of Maine stock is an inshore stock extending as far as Nova Scotia.

A coastal species inhabiting cold waters between -0.5° and 10°C, the cod is found out to the edge of the coastal shelf. Although typically a groundfish with a range down to 460 m (250 fathoms), the cod frequents all levels in search of food. It lives chiefly where there is a rocky, pebbly, or sand and gravel bottom, seldom over mud.

Cod spawn over a wide area of continental shelf under widely varying conditions. Off Newfoundland and Labrador, spawning usually occurs in

deep water of 180 m (100 fathoms) or more, while further south spawning takes place in water of 110 m (60 fathoms) or less. On the Grand Bank, spawning begins in April and continues until June with a peak in the latter half of May. On the south shores of Newfoundland, spawning begins in May and on the Nova Scotian banks in February and March.

Growth varies, depending largely on the temperature of the water and the availability of food. In general, growth is slower off Labrador and eastern Newfoundland than on the southern Grand Bank and slower in the Gulf of St. Lawrence than the Scotian Banks. Cod of 76-81 cm in length average 4.5 kg. in weight and in the Bay of Fundy would be about 6 years old. Fish of the same length and weight on the Grand Banks would be about 9 years old and cod from the banks off Nova Scotia 4 years old.

During their early floating life, cod larvae feed on zoo-plankton, when older and about 2.5 cm long, they take to the bottom where they feed on small worms and tiny shrimp-like animals. As they grow older, they continue to feed on the bottom, consuming mussels, crabs, small lobsters, brittle stars and sea urchins. After reaching a length of about 50 cm, fish of all kinds become their principal food. In Newfoundland waters, capelin is the species commonly taken. Cod depend largely on their sense of smell to locate food because their range of vision is limited to a few feet.

While cod are fished along the whole Canadian coastline from Labrador south, the most productive area is that to the east of Labrador and Newfoundland with a potential yield of some 500,000 m.t. This is about half of the potential of all Canadian coastal and offshore waters. The massive build-up of otter trawl effort in the 1960's has resulted in increased exploitation of cod offshore. Inshore areas dependent on inshore migrations of offshore stocks have suffered as a result.

## Equipment

Boats — Vessels used are diesel-powered trawlers of steel or wood in tonnage classes from 1(0-24.9 tons) to 5 (500-999.9 tons), primarily class 4 (150-499.9 tons) for side trawls and class 5 for stern trawls in 1973; line and net vessels of steel or wood ranging up to class 4 (150-499.9 tons) largely diesel powered, some smaller vessels gasoline powered.

Gear — In 1973, 18.8% of Canadian cod landings were made with set gill nets and vessels under 50 tons, 18.25% with longlines and vessels under 50 tons, 14% with traps and vessels under 50 tons, 10.5% with side otter trawl and vessels of 150 tons and over, 10% with stern otter trawl and vessels of 150 tons and over and 8% with handline and vessels of under 50 tons.

### Trawls:

Otter trawls are used on the Grand Banks, eastern Scotian shelf and Gulf of St. Lawrence. A wide variety of trawls has been in use in significant numbers since 1945.

Gill nets:

Gill nets are used for inshore fishing in the Gulf of St. Lawrence and coastal waters of Nova Scotia and Newfoundland, principally from vessels up to 25 tons. Both fixed bottom nets and fixed surface nets are used. They consist of one or more nets set in a straight line with mesh diameter usually within the 15.25-20.3 cm range.

Uncovered pound nets:

Cod traps used in coastal waters of Newfoundland and Labrador range from 64-15.3.6 m in circumference and 11-25.6 m deep; a leader extends from the surface of the water to the bottom and from trap to shore. Traps are set and harvested with small vessels under 25 tons.

Longline sets:

Longlines are generally set inshore, primarily on rough bottom in coastal waters of Newfoundland and Nova Scotia. They are used primarily with small vessels up to 25 tons which carry a limited number of men.

Handline sets:

Handlines are set inshore and on rough bottom in coastal waters of Newfoundland and Nova Scotia. The fishery uses small vessels up to 25 tons.

Operations

Season — Otter trawls, both side and stern, are operated all year. Canadian landings peak during late May, June and early July in the southern Gulf. Gill nets are set all year with a June-July peak off the east coast of Newfoundland. Uncovered pound nets are set primarily on the east coast of Labrador from July to September. Longlines are set throughout the year on the southeast coast of Newfoundland, from May through November in the Gulf, Scotian Banks and east coast of Newfoundland. Handlines are set all year on the southeast coast of Newfoundland, from June through November off the east coast, Gulf of St. Lawrence, and to a limited extent on the Scotian Banks.

Fishing base (ports) — All ports, especially those along the coast between Pass Island and Cape St. Mary on the south coast of Newfoundland, the east coast of the Gaspé peninsula in Quebec, the southeast coast of Prince Edward Island, the Caraquet-Shippegan area of New Brunswick and Lunenburg in Nova Scotia.

Regulations

Quotas for 1975 in metric tons are as follows:

| Stock region | Canada | All Countries |
|---|---|---|
| 1 | - | 60,000 |
| 2GH | - | 20,000 |
| | (1,000)* | |
| 2J-3KL | 38,000 | 554,000 |
| | (50,000)* | |
| 3M | 3,000 | 40,000 |
| 3NO | 12,700 | 87,700 |
| 3Ps | 15,900 | 62,400 |
| | (20,000)* | |
| 4T(Jan-Dec) | 27,700 | 50,000 |
| 4Vn(Jan-Apr) | (10,000)* | |
| 4Vn(May-Dec) | 5,800 | 10,000 |
| | (2,000)* | |
| 4VsW | 24,250 | 60,000 |
| 4X(Offshore) | 3,200 | 5,000 |
| 5Y | - | 10,000 |
| 5Z | 4,820 | 35,000 |

Mesh Sizes

Subareas 2 and 3 minimum dimension of any part of the trawl net 130 mm ( 5 1/8"); subareas 4 and 5 minimum dimension of net 114 mm (4 1/2") of cod end 130 mm (5 1/8").

*Estimated catch outside convention area.

Catch Composition

In addition to cod, a number of other species are taken by the different types of gear used. The most important of these are redfish, haddock, pollock and flounder.

Annual production

Increase fishing effort during the 1960's led to a gradual increase in landings reported by all countries from 954,000 m.t. in 1959 to 1,860,000 m.t. in 1968 and a steep decline to 808,000 m.t. by 1973. Of the catch reported, Canada took 37% in 1959; 17% in 1967 and 22% in 1973. Landings in Newfoundland dropped from 232,000 m.t. in 1959 to 116,043 m.t. in 1973.

Product

Cod are gutted and iced on board, then filleted on shore by the wholesaler*. From the 177,000 m.t. landed in Canada in 1973, 38,700 m.t. were put to salt. From the balance, 20,200 m.t. frozen blocks were produced, 11,100 m.t. frozen fillets, 5,200 m.t. fresh fillets, 3,900 m.t. round or dressed, fresh or frozen, 1,460 m.t. frozen blocks and 930 m.t. smoked fillets. The downward trend in the production of salted cod has continued since the introduction of the rapid-freeze process. In Newfoundland, the largest producing area, 117,500 m.t. were put to salt in 1955 and only 16,300 m.t. in 1973.

1973 Cod Exports

| Destination | Cod Product | Metric Tons |
|---|---|---|
| USA | Frozen blocks | 17,450 |
| | Frozen fillets | 8,680 |
| | Salted or dried | 5,890 |
| | Fresh fillets | 2,690 |
| | Fresh, whole or dressed | 1,200 |
| | Frozen, whole or dressed | 35,000 |
| | Smoked fillets | 27,000 |
| Puerto Rico | Salted or dried | 3,500 |
| Other countries | Salted or dried | 3,000 |

*Statistics vary accordingly
- -live or round weight in ICNAF statistics
- -gutted with head on in Information Canada statistics

Haddock *(Melanogrammus aeglefinus)*

The haddock was formerly one of the three most abundant species in the northwest Atlantic, but with increasing fishery pressure, the stocks have decreased to a degree that has necessitated the imposition of catch quotas and prohibition of fishery in spawning areas during the spawning period.

The haddock, like the cod, is found on the continental shelf on both sides of the north Atlantic, and is most abundant in the upper 180 m. On the North American side it is found from the Strait of Belle Isle to Cape Cod with winter extensions of this range in deep water as far south as Cape Hatteras. It is currently of commercial importance only along the Scotian Shelf and in the mouth of the Bay of Fundy.

The two principal stocks are now found in this area (Fig. 16). They spawn along the banks in winter, and then the eastern stock moves further east and inshore around Cape Breton and even as far as the southern Gulf of St. Lawrence. The westerly stock migrates around Nova Scotia and into the Bay of Fundy in summer, returning offshore between October and December. Smaller stocks still inhabit the Georges Bank-Nantucket shoals and the Newfoundland waters. Tagging of adult haddock has shown rather extensive seasonal migration off the Canadian mainland with a lesser migration in the New England region.

Haddock live mainly on bottom in depths that rarely exceed 180 m. Consequently, the "Eastern Channel" between Georges Bank and Browns and the Laurentian Channel provide barriers to movement and mixing of stocks. Marked seasonal differences in depth distribution occur particularly in the colder water of the eastern regions. In summer the fish spread into the shallow, warmer water of the banks; in winter they leave the banks and move again into deeper water. Haddock are most abundant at temperatures ranging from approximately 2°-9°C.

Spawning may occur from late January to July, depending on local conditions. Peaks in spawning usually occur on Georges Bank about March, on the Nova Scotia Banks about April, and on the Grand Banks about June. Definite spawning and prespawning concentrations occur on Georges, Browns, Emerald, and Grand Bank regions, while inshore spawnings seem to be relatively unimportant.

The fact that haddock eggs are pelagic for two or more weeks and the larvae for some three months, virtually ensures extensive distribution of the young before they take to the bottom. Survival of the newly hatched young varies greatly and to a major extent determines the commercial significance of the fishery.

The fry reach a length of about 3.8 cm before seeking bottom, and by 5 years of age, haddock average 50 cm in length. Growth rate is above average on Georges Bank and well below average on Grand Bank. Old haddock of 10 years or more may average 63 cm in length, and only rare individuals exceed 76 cm and a weight of 4.5 kg.

The small mouth of the haddock limits it to small articles of

food. While bivalve molluscs and brittle stars make up the bulk of the diet in most areas, representatives of other major groups of invertebrates are also consumed. Haddock from the banks show a decided preference for a diet of small fish, particularly sand launce, but supplement this with annelids. As a rule, food intake is reduced at the time of spawning.

Equipment

Boats Diesel-powered trawlers of steel and wood in tonnage classes from 1 (0-24.9 tons) to 5 (500-999.9 tons), but primarily classes 4 (150-499.9 tons) and 5. Danish and Scottish seiners, tonnage classes 2 and 3 (25-149.9 tons). Line and net vessels from class 1 to 4.

Gear Otter trawls similar to those used for cod, used extensively on the Scotian Banks and Gulf of Maine, were responsible for more than 50% of landings in 1973. Prior to the general adoption of the otter trawl, haddock were caught mostly on handlines or longlines.

Danish seine:

Used irregularly on the Scotian Banks and Grand Bank.

Scottish seine:

Introduced in the late 1960's on the Scotian Banks.

Longlines:

Used primarily on the Scotian Banks since otter trawls introduced.

Handlines:

Incidental catches on the Scotian Banks while fishing for other species.

Gill nets:

Used on the Grand Bank of Newfoundland.

Operations

Fishing effort

All year, taken primarily while fishing for cod and other groundfish due to the limited quantities currently available.

Season Trawls: used all year.

Danish seine: used all year but mostly in summer.

Scottish seine: used all year but mostly in summer.

Longline and handline: used primarily in summer.

Fishing base
(ports)

In 1971, 94% of total Canadian landings were made in Nova Scotia. Lunenburg is the most important single port followed by Shelbourne, Cape Breton, Guysborough, Halifax, and Richmond counties.

Regulations for 1975

No ICNAF member will permit a directed fishery for haddock.

In the main spawning grounds in Division 4X, the use of demersal gear is prohibited from February through May inclusive in a designated area off the southwest coast of Nova Scotia which includes Browns Bank, Baccaro Bank and all but the eastern part of Lamaye Bank. In March, April and May, similar restrictions have been established in a designated area in subarea 5 where haddock also spawn. In Division 4V, 4W and in 4X and 5, except as stipulated above, vessels fishing for other species may take haddock, incidentally in amounts not exceeding 5,000 pounds or 2,268 kg or 10% by weight of all fish on board, whichever is the greater. In subarea 5, an aggregate catch of 6,000 m.t. is established for specified member countries. Of this, the Canadian limit is 1,200 m.t.

Catch Composition

Haddock is taken as a by-catch to other fisheries. By far the most important of these is cod, but they include pollock, various flatfishes and occasionally redfish.

Annual Production

The annual catch has dropped sharply from 248,646 m.t. in 1965, when the USSR alone removed 130,000 m.t. of juvenile haddock from Georges Bank, to 26,140 m.t. in 1973 as a result of stock depletion. Once less in demand than cod, the expansion of the fresh-fish trade brought such demand for haddock because of their good keeping qualities, that in 1929 over 100,000 m.t. were taken from the Gulf of Maine alone (subareas 4, 5, and 6). In the 1960's new techniques and heavy fishing pressure from the USSR culminated in a drastic depletion of the stocks in these areas.

Product

In 1973, 2,592 m.t. were sold round or dressed, fresh or frozen; 1,409 as fresh fillets; 1,943 as frozen fillets; 942 as frozen blocks, and an unknown quantity in the round and dressed and smoked.

Channels of disposal

Exports 1973

| Product | Metric Tons United States | Metric Tons All Countries |
|---|---|---|
| Haddock, hake, whole or dressed - fresh | 3,704 | 3,704 |
| Haddock, hake whole or dressed - frozen | | 75 |
| Haddock, filleted, fresh | 779 | 779 |
| Haddock, filleted, frozen | 772 | 774 |
| Haddock, filleted, frozen blocks | | 193 |
| Haddock and cusk, dried salted | 492 | 742 |

Redfish *(Sebastes marinus)*

Redfish became commercially important after 1935 when technological advances in filleting, automatic scaling, and quick freezing stimulated its introduction as a low cost item to the inland market as "Ocean Perch". At the same time the trend from longlining to the more efficient otter trawling made the catching of great quantities of these small-mouth fish possible.

Found on both sides of the Atlantic, it frequents cold waters (3°-8°C) in gullies and in deep water slopes. On the North American side, large catches are taken from the Nova Scotian Banks at depths from 90-180 m and Newfoundland Banks from 180-360 m but the most important fishing area is the continental slope from southwestern Grand Bank to Hamilton Inlet Bank off Labrador. Limited catches are taken as far north as the south coast of Baffin Island and in deep waters as far south as New Jersey. Commercial quantities are sometimes present at 550-640 m, especially in winter.

In the Gulf of St. Lawrence one stock is found north of the Laurentian Channel. A second occurs in deep waters on the southern edges of the channel as far south as Banquereau Bank. A third stock is found in deep waters on both inshore and offshore edges of the Nova Scotia Banks, and as far west as the mouth of the Fundy (Fig. 17). Their abundance or lack of abundance at certain seasons of the year suggests that some seasonal offshore and inshore movement may occur. Restricted diurnal movements appear to be usual with the result that normal commercial fishing for redfish was formerly carried on only during the daylight hours when the fish are concentrated towards the bottom. In the industry today, new technology for locating fish and regulating trawl depth has resulted in the utilization of midwater trawls to a major extent in the redfish industry.

The time of larval production varies with area and depth of water at which the fish are living. In the Newfoundland area, spawning occurs from March to July but in the Gulf of Maine, larvae may be born from April to September with heaviest spawning during June and July. Female redfish carrying young may be caught throughout their range and no evidence exists of any special spawning grounds.

Redfish grow very slowly. An increase of about 2.5 cm a year is normal during the early years, but this rate decreases with age. While fish breed and bear young when they reach a length of about 23 cm and are about 10 years of age, many fish in the commercial catch are more than 20 years old.

In spite of the fact that redfish are usually at or very near the bottom during a great part of the day, examination of stomachs has shown that redfish are pelagic feeders and do not normally feed on bottom-living organisms. In the Gulf of St. Lawrence, redfish feed on euphausids with an admixture of small fishes, decapods, copepods, and amphipods.

As the redfish grows so slowly, the history of the intensive fishery has been one of shifting to new grounds as the existing stocks are soon fished down to an unprofitable level.

Equipment

Boats — Diesel-powered trawlers of steel and wood, primarily in tonnage classes 3 (50-149.9 tons) to 5 (500-999.9 tons).

Gear — Midwater trawls currently take two thirds of the Canadian catch, operating when the fish are feeding.

Otter trawls account for less than one quarter of the catch.

Scallop trawls and gill nets take incidental catches.

Longline sets are used exclusively in Newfoundland and now account for less than one tenth of 1% of the annual catch.

Operations

Fishing base (ports)

In Newfoundland the most important ports are along the south coast from Cape Ray to Cape St. Mary, in New Brunswick, Gloucester County and in Nova Scotia, Lunenburg, Shelbourne, Louisbourg, and Petit de Grat.

Regulations

Size limit

Subarea 2, 3K, 3L, 3M. Taking of redfish prohibited using trawl nets with mesh dimensions less than 130 mm (5.25").

In 3N, 30, 3P, mesh sizes smaller than the above may be used when fishing specifically for redfish if other species taken do not exceed 5,000 pounds (2.268 kg) or 10% by weight of all fish on board whichever is greater and if during the year no more than 10% of the total catch is made up of any one of cod, haddock, or of halibut, witch, yellowtail, American plaice, pollock or white hake together.

Quotas for 1975 in Metric Tons

| Stock region | Canada | All Countries |
|---|---|---|
| 2 + 3K | 3,500 | 30,000 |
| 3M | 1,000 | 16,000 |
| 3LN | 1,300 | 20,000 |
| 30 | 500 | 16,000 |
| 3P | 12,500 | 25,000 |
| 4VWX | 14,860 | 30,000 |
| 5 | - | 25,000 |

Catch composition

In addition to redfish, deepwater trawls catch cod, haddock, halibut, witch, yellowtail, American plaice, and pollock.

Annual production

A fifteenfold increase in redfish landings took place between 1935, when the fishery in the ICNAF area began, and 1948 as a result of the expansion of Canadian and U.S. fisheries along the Nova Scotia seaboard. Another sharp increase in landings occurred between 1956 and 1959 during which time landings were tripled. In 1959, redfish landings were second only to cod due largely to the tremendous fishing effort exerted by a number of European countries, notably USSR. Because of their relatively low landed value in the United States and Canada, redfish must be caught in quantity if the fishery is to be economically sound.

Product

In 1973, 4,830 m.t. of redfish fillets were sold fresh, 37,707 m.t. as frozen fillets and 3,500 m.t. as frozen blocks, nearly all exported to the U.S.

Pollock *(Pollachius virens)*

This important commercial species is also valued by sports fishermen because it will take an artificial lure and put up as strong a resistance as trout or salmon when caught on light tackle.

Pollock are found on both sides of the North Atlantic and on the North American side from Sandwich Bay, Labrador, southern Newfoundland and Grand Bank and the southern Gulf of St. Lawrence to New Jersey. They are found in variable numbers in the Gulf of St. Lawrence, are abundant off southern Newfoundland and the mouth of the Bay of Fundy. Pollock are also caught on the western Nova Scotia Banks, with Nova Scotia obtaining the bulk of the Canadian landings.

Studies of pollock distribution prior to 1968 show that there were three groups in 4W and 4X, one in the Bay of Fundy, one in the area of Browns Bank and LaHave Bank and one to the east with greatest concentration around Emerald and Western Banks.

Pollock may move great distances during seasonal migrations. Fish tagged off Grand Manan have been shown to move to Cape Cod over winter and return in spring. Little is known of spawning in the north though it is likely that spawning occurs off Nova Scotia. In Massachusetts Bay, pollock spawn from November to January, as water temperatures fall, with peak between 6.0° and 4.5°C.

Yearlings in the Bay of Fundy are 7-9 cm long, 2 year olds about 30 cm, then rate of growth decreases and at 6 years, adults average 68 cm.

Pollock are voracious feeders, with inshore fish generally eating small crustaceans, mainly amphipods, while larger offshore pollock eat a variety of fish. Euphausids are important in the diet of pollock in the Bay of Fundy. The fish most frequently found in pollock stomachs is the sand launce but small plaice, myctophids, and hake are also common.

Equipment

Boats — In 1973, diesel-powered trawlers in tonnage classes from 1 (0-24.9 tons) to 5 (500-999.9 tons) took 86% of the catch. Diesel and gasoline-powered vessels used for handlining took 7.3% of the catch, vessels in classes 1 to 3 (50-149.9 tons) used for longlining took 3.3%.

Gear — Gill nets were used extensively prior to 1935 but by 1946, 75% of the pollock landed were caught by otter trawl. Handlines were next in importance and gill nets, traps, and midwater trawls were responsible for small percentages of the total.

Operations

Season — The fish are taken inshore in summer by handline, longline, gill net and trap and offshore in all seasons by otter trawl.

Fishing base
(ports)

Primarily Lunenburg, Halifax, and to a lesser degree, Digby.

Regulations

Quotas for 1975: Aggregate catch in 4 VWX and subarea 5 shall not exceed 55,000 m.t. Canada limited to 33,500 m.t.

Catch composition

Usually taken with either cod or haddock by otter trawl. However, when pollock is the species sought, it is quite often segregated and fished independently of other species, particularly in Division 4W and 4X.

Annual production

Production dropped gradually from 1964 to 1970 returning to the 1964 level by 1973. Of this, Canada took from 45-75%.

Product

In 1973, 5,611 m.t. of pollock were given a heavy salt treatment. Of the balance, some were sold fresh, some filleted and frozen, some dried and salted.

1973 Exports

| | Metric Tons | | | |
|---|---|---|---|---|
| Product | Puerto Rico | United States | Others | All Countries |
| Hake, cusk & pollock frozen fillets | | 1,501 | | 1,502 |
| Frozen pollock fillets | | 1,306 | | 1,311 |
| Pollock, dried salted | 561 | 799 | 410 | 1,770 |

White hake *(Urophycis tenuis)*

The white hake is the only hake of commercial significance in the Canadian fishery. It is found in the coastal region of the northwestern Atlanticfrom southern Labrador, the Gulf of St. Lawrence and southern Grand Bank to North Carolina, in water ranging all the way to 940 m (Fig. 18). Studies have not yet progressed far enough to show any separation of stocks.

Spawning occurs in midsummer in the southern Gulf of St. Lawrence, and winter or spring at the mouth of the Bay of Fundy. At a length of 7.5-12.5 cm white hake go to bottom and live as groundfish thereafter. Small hake of this size are often seen close to shore in midsummer but at the same time young of comparable size are found living inside the shells of dead sea scallops in deeper water.

In general, hake are more abundant on soft, muddy bottoms than on hard bottoms.

Small hake live largely on a diet of amphipods and copepods while larger individuals feed on amphipods, euphausids, prawns and other decapod shrimps as well as on a wide variety of small fishes.

Equipment

The main fisheries for white hake are by gill net, line, and otter trawl in the southern Gulf of St. Lawrence, a line fishery off Digby Neck, and incidental line and otter trawl catches off south-western Nova Scotia.

Operations

Many of the division 4X-4W landings are incidental, whereas the fishery in the southeastern part of Division 4T is specifically for hake. Nova Scotia dominates the landing statistics.

Regulations

No quotas or size limits have yet been established.

Product

Hake are used fresh to a small extent but a large part of the catch is either salted and dried or canned. The livers yield a valuable oil and the air bladders are used in the manufacture of gelatin. In 1973, 6,413 out of 15,822 m.t. of hake were put to salt; 249 m.t. sold wet salted; 1,398 m.t. sold dried salted.

Of hake and pollock combined, 1,500 m.t. were filleted and frozen, practically all of it being exported to the U.S. A further 2,000 m.t. were dried and salted, a little less than half of this product being shipped to the U.S.

Cusk *(Brosme brosme)*

Cusk are found on both sides of the Atlantic Ocean, and range along the coast on the North American side from the Strait of Belle Isle, and the banks off Newfoundland and Nova Scotia to Cape Cod.

Cusk are northern deep-water groundfish, living in areas where the bottom is hard or rocky. They are found in water 18-900 m deep at temperatures ranging from 1°-10°C. Investigations on the Sable Island Banks indicate greatest abundance at depths of 110 m and temperatures of 5°-8°C.

The adults feed on molluscs and crabs and occasionally starfish.

Resource

The principal fishery is in Division 4X off the south coast of Nova Scotia (Fig. 19).

Equipment

Over 95% of the cusk landings from subarea 4 are from Canadian longline catches and of these, over 80% are from Division 4X. Longlining is particularly effective because of the rough bottom on which cusk are found. Landings by otter trawl are incidental to other species.

Regulations

None.

Catch Composition

Cusk is the main species in some longline catches, but a considerable quantity is taken incidentally by halibut longliners.

Product

Cusk are marketed fresh frozen and salted.

Exports 1973

| Product | Metric tons: United States | Metric tons: All Countries |
|---|---|---|
| Hake, cusk, pollock frozen fillets | 1,501 | 1,502 |
| Haddock, cusk, dried salted | 492 | 742 |

Atlantic wolffish *(Anarhichas lupus)*

The wolffish is remarkable for its ferocious appearance due largely to the row of 6 large, stout, conical teeth at the front of the upper jaw and the 4-6 large tusks at the front of the lower jaw.

The wolffish occurs on both sides of the Atlantic Ocean, on the North American side from Labrador to Cape Cod. Though scarce in the Gulf of St. Lawrence, it is common at Canso, Nova Scotia, and caught commercially from Banquereau, Middle Ground, Sable Island Bank, Emerald Bank and LaHave Bank.

Wolffish are solitary and relatively stationary, usually living over hard bottom in water 18-150 m deep. Since they are weak swimmers, they do not catch fish but their powerful molars serve to crush molluscs. Thus their basic food consists of whelks, mussels and bar clams with occasional crabs, sea urchins and starfish.

Resource

Most of the wolffish landed are 1 m or less in length and weigh up to 8 or 9 kg. Since they do not appear in large schools, incidental landings are made throughout the year by otter trawl, primarily on the Scotian Banks. While they can be caught on handlines baited with cockles or clams, they are rarely caught on longlines baited with herring.

Product

An acceptable food fish, 1,087 out of 1,089 m.t. exported in 1973 were sold in the United States.

Atlantic halibut *(Hippoglossus hippoglossus)*

Halibut, a prized table fish, has a much higher landed value than any other Atlantic coast groundfish, which makes it economically feasible for fishermen to fish and land relatively small quantities.

The halibut is a resident of cold boreal and sub-arctic waters and is found in the northwest Atlantic from the west coast of Greenland and Labrador to the Gulf of Maine. On the Nova Scotian Banks halibut may be found in late fall from the east to west along the 180 m edge. They are also caught in the Gulf of St. Lawrence and the Grand Bank where bottom temperatures are above 2°C. Because of their migratory habits, stock divisions have been difficult to establish but two main groups of importance to the Canadian fishery are now recognized, one in the Gulf of St. Lawrence and the other in the Nova Scotian Grand Bank area (Fig. 20). Newfoundland accounts for a little less than a third of the Canadian catch.

Halibut are sexually mature at about 10 years, and spawn in deep water (725-900 m) in late winter and early spring. Female halibut grow faster than males after the first 8 years and reach a larger maximum size. In the Gulf of St. Lawrence, females of 25 years average 190 cm, males 157 cm. A few specimens reach weights of 275 kg, a weight exceeded only by some tunas, sharks and swordfish.

Halibut are voracious feeders, living on invertebrates and fish until they reach a length of about 70 cm and then on fishes almost exclusively. The principal invertebrates eaten are crabs, decapod shrimps and euphausids.

Equipment

Halibut are fished by means of longlines and to a lesser extent by otter trawls. Fish taken by longline are typically large and old, and while fish caught by otter trawl may exceed those caught by longline in numbers, they are, as a rule, smaller.

Operations

Season — Halibut are caught throughout the year except in the Gulf of St. Lawrence where ice conditions prevent winter fishing.

Regulations

Taking of halibut in subarea 3 with trawl nets with mesh of less than 130 mm is prohibited. No quotas have been established to date as insufficient biological data are available.

Catch Composition

Hake, cusk and cod are taken incidentally and sometimes in considerable quantities by halibut longliners.

Product

Halibut are marketed fresh and frozen. In 1973, 1,197 m.t. were sold round or dressed fresh and frozen. Of the 760 m.t. exported fresh, 759 were sent to the United States; 68 m.t. of frozen halibut were exported to unidentified countries.

Greenland halibut *(Reinhardtius hippoglossoides)*
(or Greenland turbot)

The Greenland halibut, always called turbot in Newfoundland, is a little known species inhabiting Arctic and north Atlantic waters. On the North American side of the Atlantic it occurs from Cape Mercy, Baffin Island, to the southwest edge of Georges Bank. In Canada it supports a fishery off the south coast of Newfoundland and the Grand Bank, and a fishery on the northwest coast of Greenland. Lesser amounts are landed in the Maritimes and Quebec.

A deepwater fish, taken at depths up to 540 m, the Greenland halibut is one of the largest of the flatfishes and may reach a length of 1 m and a weight of 11 kg. Fish caught on the Grand Banks weigh only from 2.5-5.0 kg.

Small turbot up to 12 cm are eaten by cod in northern waters.

Fishery

The main Canadian fishery is in Notre Dame, Bonavista and Trinity Bays and the areas to the east and northeast of these locations in Newfoundland.

Equipment

Boats — Motor fishing vessels, such as those of the Cape Island type, are used for Canadian inshore fisheries; large trawlers are used by USSR, Poland, and others for offshore fishery.

Gear — The Canadian fishery has been converted almost entirely from longline gear to gill net. The offshore fishery, which is much the larger, uses otter trawls.

Operations

Fishing base (ports) — Various ports around the coast of Newfoundland such as Twillingate, St. Anthony and Catalina.

Regulations

Taking of Greenland halibut with trawl nets with meshes of dimensions less than 130 mm ( 5 1/8") is prohibitied in subareas 1, 2, and 3. In subarea 3, nets of smaller mesh size may be used for redfish so long as Greenland halibut does not constitute more than 5,000 pounds (2,268 kg) or 10% by weight of all fish aboard, whichever is greater.

Quota 1975

| Stock areas | Metric Tons: Canadian quota | Metric Tons: Total Quota |
|---|---|---|
| 2,3KL | 9,000 (5,000)* | 40,000 |

Exports 1973

| | Metric Tons: USA | Metric Tons: Total |
|---|---|---|
| Frozen fillets | 919 | 960 |
| Frozen blocks | 1,256 | 1,256 |

*Estimated catch outside convention area

Yellowtail flounder (*Limanda ferruginea*)

The yellowtail is a North American species and is found along the continental shelf in water from 9-110 m deep from the Labrador side of the Strait of Belle Isle, Gulf of St. Lawrence, and Newfoundland Banks to the lower part of Chesapeak Bay. It is found on sandy, mixed sand, and mud bottoms.

Structural differences indicate that there is no mixing of populations off Cape Cod with those of Sable Island Bank. Divisions of stocks in Canadian waters are not clearly established.

Yellowtail spawn on Sable Bank, Banquereau Bank, and the Newfoundland Banks. Yellowtail from Middle Ground and Sable Island Bank grow more slowly than those from near Cape Cod until they are 5 or 6 years old, but at 7 years both stocks are about the same size. Females from Middle Ground and Sable Island Bank reach a length of 30 cm in 5 years and 45 cm in 8-9 years. Males grow at a similar rate for the first 7 years and then their growth rate falls behind that of the female.

Yellowtail feed chiefly on small crustacea such as amphipods, euphausids, shrimp, mysids, also small shellfish and marine worms. Since they are small-mouthed and rather sluggish, fish do not constitute a significant part of their diet.

Equipment

Boats — Trawlers in tonnage classes 1 (0-24.9 tons) to 4 (150-499.9 tons) of steel and wood currently take virtually all of the catch.

Gear — Otter trawls are used exclusively for the commercial fishery though incidental catches are made with other gear. The small mouth prevents any but the largest from being caught on line trawls.

Operations

Season — Yellowtail are taken throughout the year.

Fishing base (ports) — Some yellowtail are landed at ports on the south coast of Nova Scotia but the principal ports are on the southeast coast of Newfoundland.

Regulations

In subarea 3, the taking of yellowtail with trawl nets having meshes of less than 130 mm (5 1/8") is prohibited. In subareas 4 and 5, minimum mesh dimension other than in the codend is 114 mm (4 1/2") and in the codend 130 mm (5 1/8"). In order to avoid impairment of fisheries conducted primarily for other species, yellowtail flounder may be taken with nets having mesh size less than that proposed, so long as the immediate catch does not exceed 2,268 kg (5,000 pounds) or 10% by weight or the annual catch exceed 10% of the principal species sought.

Quota 1975

| Stock Region | Species | Canada (Metric Tons) | All Countries (Metric Tons) |
|---|---|---|---|
| 3LNO | Yellowtail | 30,500 | 35,000 |
| 4VWX | Yellowtail, witch and American plaice combined | 20,000 | 32,000 |

Catch Composition

Yellowtail are taken with witch, American plaice, cod and haddock.

Product

Valued as a tasty food fish, they are used fresh and frozen in the filleted form and make up a large part of the fillet of sole on the market.

Exports 1974

| | United States (Metric Tons) | All Countries (Metric Tons) |
|---|---|---|
| Sole, flounder, fresh fillets | 497 | 500 |
| Sole, flounder, frozen fillets | 18,737 | 18,884 |
| Sole, flounder, frozen blocks | 5,355 | 5,355 |

American plaice *(Hippoglossoides platessoides)*

The commercial importance of American plaice in the eastern Canadian fisheries has increased dramatically in recent years and it is currently of prime significance in the Newfoundland fisheries.

Found on both sides of the North Atlantic Ocean, its range extends in the west from southern Labrador and the Grand Banks to Rhode Island. In Newfoundland, it constitutes by far the most common flatfish fishery. American plaice are predominantly found in cold water (less than 5°C) but they also survive in warmer water (Fig. 21). No appreciable migration of adults has been established but adults move into deep, warmer water in winter. In spring and summer, they are principally found in the cold water layers of inshore areas. In the Newfoundland area the main fishing grounds are in the path of the colder water of the Labrador current in the northwestern, northern and eastern slopes of the Grand Bank.

Female plaice mature at a length of about 46 cm, males at about 25.5 cm. Spawning takes place during April and May in the Bay of Fundy, May and June in the southern Gulf of St. Lawrence, and as late as July on Newfoundland Banks and later on the Labrador coast. The fry are found over the entire range of the adults except in the Bay of Fundy.

Growth rates vary with sex and locality. In the Passamaquoddy area, female plaice 5 years old average 40 cm while in Bay Islands, Newfoundland, they are only 14.6 cm at the same age. Plaice up to 26 years old occur but seldom exceed 65 cm.

Fry eat diatoms and small copepods while small plaice on bottom eat amphipods, crustaceans, mysids and other small benthic crustaceans. As they become larger, they eat a wide variety of invertebrates, sand dollars, sea urchins, gastropod molluscs, shrimp and worms and occasionally small capelin, sand launce,and other fish. They in turn are eaten by cod, halibut, Greenland sharks and, as juveniles, by skate, eelpout, sea ravens and cod.

Equipment

Boats — Diesel powered trawlers of steel and wood range from class 1 (0-24.9 tons) to class 4 (150-499.9 tons), gill net vessels from class 1 to class 3 (50-149.9 tons), seiners class 2 (2549.9 tons) to 3, longline vessels from class 1 to 3. Class 1 vessels are also used for handlining and setting traps.

Gear — Plaice are caught mainly by otter trawls and to a much smaller extent by gill nets, Danish and Scottish seines, longlines and handlines.

Operations

Season — Plaice are caught throughout the year but the heaviest catches are made from May through September.

Fishing base
(ports) The major ports for landing plaice are in Newfoundland along the east and southeast coast. In New Brunswick the principal ports are in Gloucester County, and in Nova Scotia in Cape Breton, Guysborough, and Halifax Counties.

Regulations

In subareas 1, 2, and 3, the taking of American plaice is prohibited with trawl nets whose mesh dimensions are less than 130 mm (5 1/8"). In subarea 4, it is prohibited with trawl nets having mesh dimensions less than 114 mm (4 1/2") except in the codend where it has to be less than 130 mm.

Quota 1975

| | | Metric Tons | |
|---|---|---|---|
| Stock region | Species | Canada | All Countries |
| 2, 3K | American plaice | 2,500<br>(1,000)* | 8,000 |
| 3LNO | " " | 49,700 | 60,000 |
| 3M | " " | 500 | 2,000 |
| 3Ps | " " | 8,800 | 11,000 |
| 4VWX | Yellowtail, witch and American plaice | 20,000 | 32,000 |

Catch composition

Taken together with witch, yellowtail, cod and occasionally redfish.

Annual production

Although an excellent pan fish, there was no special demand for American plaice until World War II when an increasing demand for food resulted in increased interest in this species.

Product

Due to protein wastage before and at spawning time, the very large plaice around Newfoundland and the Gulf of St. Lawrence show a jellied condition of the muscle. In recent years, the fishery has reduced the number of old fish and as a result has eliminated much of the quality program.

*Estimated catch outside the convention area

Product
(con't.)

In 1973, a total of 1,416 m.t. of all flatfish were sold round or dressed fresh and frozen, 1,313 m.t. as fresh fillets, 22,118 m.t. as frozen fillets, 5,902 as frozen blocks. The United States is the major importer of all Canadian fresh and frozen flounder products.

## Witch flounder *(Glyptocephalus cynoglossus)*

Despite its thin body, the witch flounder or grey sole has become an increasingly important commercial species because of its fine flavour. Most significant catches are in the subarea 3 segment of the Newfoundland fishery.

It occurs on both sides of the North Atlantic Ocean in moderately deep water, and ranges in North America from the Gulf of St. Lawrence and the southern Grand Bank to Cape Hatteras. On the Scotian Shelf, witch are most abundant at depths greater than 120 m (Fig. 22). Preference is shown for clay mud or mud-sand bottoms over a wide range of water temperatures.

Spawning takes place during spring and early summer. The larval life is long with the free-drifting stage lasting from 4-6 months. Only when the fish has reached a length of about 3.8 cm does the left eye move to the right side of the head and the young fish take on the appearance of the adult. The growth rate thereafter is slow and the maximum size reached in the order of 63 cm. During the adult life there is no evidence of migration or seasonal movement.

Like other small-mouthed flatfishes, witch are bottom feeders and live primarily on a diet of amphipods, marine worms and small molluscs.

The best catches are made at depths between 110 and 270 m.

### Equipment

Boats — Diesel-powered trawlers and seiners of steel and wood in tonnage classes 1 (0-24.9 tons) to 4(150-499.9 tons) are in common use, also vessels for setting and fishing gill nets ranging from tonnage class 1 to 3(50-149.9 tons). Class 1 and 2(25-49.9 tons), vessels primarily of wood, are used for longlining, handlining and setting traps.

Gear — The greater part of the catch is taken directly or indirectly by otter trawls, with Danish seines and gill nets next in importance. Smaller catches are taken with Scottish seines, handlines and longlines.

### Operations

Season — Witch are caught the year around but in greater numbers during the summer season.

Fishing base (ports) — Ports are scattered along the Newfoundland coast, Gulf of St. Lawrence and south shore of Nova Scotia.

Regulations

In subareas 1, 2, and 3, taking of witch is prohibited with trawl nets whose mesh dimensions are less than 130 mm (5 1/8"). In subarea 4 it is prohibited with trawl nets whose mesh dimensions are less than 114 mm (4 1/2") and cod ends are less than 130 mm.

Quota 1975

| | | Metric Tons | |
|---|---|---|---|
| Stock Region | Species | Canada | All Countries |
| 2J-3KL | Witch | 4,600<br>(2,300)* | 17,000 |
| 3NO | Witch | 5,000 | 10,000 |
| 3Ps | Witch | 2,500 | 3,000 |
| 4VWX | Yellowtail, witch and American plaice | 20,000 | 32,000 |

* Estimated catch outside convention area

Catch composition

Witch is taken while fishing for redfish and cod in deep water, also taken with American plaice, yellowtail and haddock.

Annual production

Greatly increased effort has increased catches substantially since 1969 but quotas have now been established that will reduce the catch well below that of recent years.

Product

Witch is marketed primarily as frozen fillets. The United States is the principal importer.

<u>Winter flounder</u> *(Pseudopleuronectes americanus)*

The winter flounder is found on the Atlantic coast of North America, mostly in water up to 36 m deep from $55^{o}45$'N in Labrador, southward on the Newfoundland coast, and along the north shore of the Gulf of St. Lawrence, in the Bay of Fundy, on the Grand Bank and as far south as Georgia (Fig. 23).

Winter flounder inhabit soft, muddy to moderately hard bottoms and are tolerant of a wide range of temperatures, though preferring water between $12^{o}$ and $15^{o}$C. In Passamaquoddy Bay, the winter flounders leave shore for deeper water in November and return in April. Results of tagging experiments indicate that no extensive movement of these flounders occurs.

Winter flounders spawn in shallow water in late winter and spring. As with other species, growth rate varies with locality and temperature; it is more rapid in St. Mary Bay than elsewhere in Canada and slowest in Passamaquoddy Bay. In St. Mary Bay, 2-year-old fish attain a length of 17.8 cm, 8-year-olds 42.5 cm. Females grow slightly faster than males. Inshore specimens seldom exceed 45.5 cm but flounders measuring 63.5 cm and weighing 3.6 kg have been reported from the Western Bank.

Full grown winter flounders eat amphipods, insopods, marine worms, soft-shelled clams, other small bivalves, snail eggs and seaweed. When the opportunity occurs they act as scavengers.

<u>Resource</u>

The principal Canadian fishery is in subarea 4.

<u>Equipment</u>

Boats — Inshore, small wooden vessels of less than 25 tons are used; offshore, winter flounders are taken incidentally by trawlers.

Gear — Winter flounders are taken inshore with baited hooks, spears, fyke nets (cylindrical traps with wooden hoops), shut-off seines and smelt traps; offshore in flounder drags and otter trawls.

<u>Operations</u>

Season — Inshore, flounders are taken in the spring, summer and fall; offshore, the year around.

Fishing base (ports) — The principal ports are in the Bay of Chaleur, eastern Prince Edward Island, St. Mary Bay region, Nova Scotia and the outer Nova Scotia coast.

Regulations

Fishing for winter flounder is prohibited in subarea 4 with trawl nets having net meshes other than in the cod end less than 114 mm (4 1/2") and in the cod end meshes less than 130 mm (5 1/8"). They may be taken by vessels fishing for other species with nets of smaller mesh size, so long as vessels do not have on board flounders in excess of 5,000 lb (2,268 kg) or 10% by weight of all fish on board whichever is greater.

No quota has been established.

Product

Used for human consumption as fresh or frozen fillets and for fox food.

# THE SMALL PELAGIC FISHES

## Herring *(Clupea harengus)*

Of all the living resources of the world's oceans, none approaches the herring and herring-like fishes. Members of the herring family are found in almost every part of the world. Wars have been fought, laws enacted, and cities built as a direct consequence of herring fisheries. On the Canadian east coast, the Atlantic herring is one of the major species in the fishery.

The Atlantic herring is found on both sides of the Atlantic Ocean from latitude 30°N to the Arctic. On the North American side it is found in coastal waters from Northern Labrador to Cape Hatteras, and is abundant from Hamilton Inlet in Labrador to Maine.

To date, four major stocks have been identified in the ICNAF area plus numerous small local stocks, but current research continues to improve the delineation of these stocks and our knowledge of migrations.

The Gulf of St. Lawrence stock in Divisions 3P and 4RST migrates seasonally between the Gaspe area where it is fished in summer to southwest Newfoundland where it is fished in autumn and winter. To date the origin of the stock fished in 4Vn in November and December has not been established.

The Nova Scotia stock is fished in the Chedabucto Bay area in January and February, then on the Scotian Shelf as it migrates to southwestern Nova Scotia where it is fished in July, August, and September. It spawns there in autumn, then migrates back to the Chedabucto Bay area to overwinter.

The Georges Bank stock spawns in autumn in Division 5Ze where it is fished heavily, and subsequently moves southwest where it is fished from December to March in 5ZW and subarea 6.

The Gulf of Maine stock complex which spawns in autumn primarily on Jeffreys Ledge, in part migrates along the coast and into the Bay of Fundy where it is fished in spring and summer.

A number of small stocks off the east coasts of Newfoundland and Nova Scotia have yet to be clearly defined.

The known breeding grounds for the Atlantic herring are mostly inshore. While spawning occurs mainly in May and August, in Canadian waters, it occurs also in specific areas over the entire period April-November.

Atlantic herring of commercial size in the southern Gulf of St. Lawrence range from 3-17 years in age and up to 43 cm (17 inches) in length. Growth is somewhat slower among fish from the south and west coast of Newfoundland and more rapid on the outer coast of Nova Scotia.

The Atlantic herring are primarily plankton eaters; postlarval forms feed on minute plants and invertebrate eggs; adults feed primarily on copepods and euphausids but they also utilize a wide range of other marine forms up to and including a variety of fish. The herring in turn is preyed upon by most of the larger species of pelagic predators and marine mammals, constituting the chief source of food of most of these.

While the Atlantic herring are found over a wide area on the east cost of Canada, the Canadian fishery is still mostly inshore, and until the mid-1960's was not fully exploited. To date, little Canadian effort has been made to exploit the offshore potential, although substantial quantities are taken by distant water fleets. The dramatic increase in effort expended by the Canadian fishery in 1966, 1967, and 1968 almost tripled 1965 landings, but existing stocks could not support this volume of exploitation and landings have since dropped accordingly.

Equipment

Boats — Diesel-powered seiners of steel and wood in tonnage classes from 1 (0-24.9 tons) to 4 (150-499.9 tons). In 1972, purse seine vessels 21 m (70 ft) long and over took 42.9% of the catch; purse seine vessels under 21 m (70 ft) took 25.6%. Wooden vessels, primarily diesel-powered and ranging up to 24.9 tons are used for midwater trawling, setting and harvesting seines, weirs, gill nets, traps, and beach seines.

Gear — Purse seines: Seines are the single most important type of gear used in the industry in both the Maritimes and Newfoundland. The seine is also the major type of fishing gear used in the late summer spawning herring fishery of Nova Scotia. The most common length:depth ratio for a purse seine is 10:1.

Herring weirs: Weirs are used extensively in the Bay of Fundy during the spring and summer months. Herring are collected in the weir by means of a seine and from there pumped into the herring boat.

Gill nets: Gill nets, mostly anchored, are used on the extensive winter and spring fisheries for spring-spawning herring on the south and west coast of Newfoundland, but have been replaced to a large extent by purse seining.

Beach seines: Have been largely replaced by purse seines as the major fishing gear.

Operations

Season Catches are low during December through March, increase in April, are greatest along the western Gulf of St. Lawrence and Magdalen Islands in May, in the Gulf of Maine, Bay of Fundy and south coast of Nova Scotia from June through October, then drop in November.

Fishing base (ports) In Newfoundland, the most important ports are located on the south shore between Pass Island and Cape St. Mary and on the west coast between Cape St. George and Cape St. Gregory. In New Brunswick, Charlotte County receives the bulk of the catch and Gloucester County a large part of the balance. In Prince Edward Island, Prince Country receives most of the catch, and in Nova Scotia, Guysborough, Yarmouth and to a lesser extent Digby County.

Regulations

Quotas 1975

| Stock Region | Canada (Metric Tons) | All Countries (Metric Tons) |
|---|---|---|
| 4V and 4W north of 44°52'N (July 1, 1975 - June 30, 1976) | 39,800 | 45,000 |
| 4X and southern part of 4W | 68,500 | 90,000 |
| 5Z and adjacent waters to S & W | 2,000 | 150,000 |
| 5Y | 4,200 | 25,000 |

Size: Where quotas are established by ICNAF, there is a 9-inch (22.9 cm) minimum total length with a tolerance of 25% by volume. In the Gulf of St. Lawrence and Bay of Fundy, Canadian regulations establish a 4 1/2 inch (11.4 cm) minimum total length, a limitation that herring from 4 1/2 to 7 inches (11.4-17.8 cm) can be used for food only, and that those over 7 inches may be used for any purpose. There are no regulations governing mesh size.

Catch composition

In addition to herring, mackerel is the only other species taken in significant quantity in purse seines and weirs. In gill

nets, mackerel, haddock, redfish, and pollock are taken in significant quantities; in traps, mackerel, cod, haddock, pollock, and flounder; and in the beach seine, only mackerel.

Annual production

Increased fishing effort during the 1960's led to a tremendous increase in landings reported by Canada - from 85,000 m.t. (round fresh) to 528,000 in 1968 and a somewhat gradual decline to 225,000 in 1973. Landings in subarea 3 have dropped much more drastically than elsewhere.

Product

The Canadian herring purse seine fishery was developed as a meal and oil fishery and the "offshore" catches in the Bay of Fundy - Gulf of Maine area are still used primarily for this purpose. As a result of declining catches, the recent tendency elsewhere has been to utilize more of the adult catch for human consumption, principally in the pickled, salted, smoked or vinegar-cured form.

The inshore weir fishery in the Bay of Fundy - Gulf of Maine continues to be mainly for immature fish used in the sardine canning industry.

An unknown but undoubtedly substantial quantity of herring is used as bait in other fisheries.

Herring scales are a by-product of the industry in the Bay of Fundy. Scales are removed by the flow of water used to remove herring from the seine and shipped to Eastport, Maine, for use in the manufacture of essence of pearl.

Of the 225,148 m.t. landed in Canada in 1973, 66,329 m.t. were sold round or dressed fresh or frozen, 711 m.t. as kippered herring, 1.66 m.t. herring bloater, salted or smoked; 111,741 two-hundred-pound barrels of pickled and vinegar-cured herring were produced and sold, also 85,398 barrels of pickled fillets, 612,559 twenty-pound cases of sardines, 13,651 m.t. of meal and 7,511 m.t. of oil.

Channels of disposal:

A variable but relatively small percentage of herring caught in 4X, 5Y and 5Z under the Canadian quota are landed or shipped immediately but credited as Canadian landings.

Herring Exports 1973 (metric tons)

| | USA | Europe | Caribbean | Asia | Others | Total |
|---|---|---|---|---|---|---|
| Fresh | 26,974 | - | - | - | 36 | 27,010 |
| Frozen (whole or fillet) | 1,914 | 1,706 | - | 8,359 | 3,650 | 15,629 |
| Kippers, bloaters, boneless | - | - | 799 | - | 1,384 | 2,182 |
| Vinegar cured | 2,898 | 1,485 | - | - | 1,407 | 5,790 |
| Pickled | 5,097 | 8,862 | - | - | 3,247 | 17,206 |
| Kipper snacks | 1,010 | - | - | - | 104 | 1,114 |
| Canned (herring and sardines) | 3,055 | 407 | 3,839 | - | 2,744 | 10,135 |
| Oil* | - | - | - | - | - | 2,834 |
| Meal | 6,591 | 4,996 | - | - | 1,410 | 12,997 |

*destination unlisted

Atlantic mackerel *(Scomber scombrus)*

The Atlantic mackerel has been caught off the American coast in large numbers since the colonial period but dramatic fluctuations have occurred from time to time due to environmental and economic factors. In 1884, the catch reached 160,000 m.t., fell to a low of 5,650 m.t. in 1910, then rose to 408,618* m.t. in 1972. In Newfoundland waters, mackerel virtually disappeared after 1880 and did not appear in abundance until the mid 1940's during a period of climatic warming.

The Atlantic mackerel is a warm-water species found in the area of the continental shelf on both sides of the Atlantic Ocean between the 30th and 52nd parallel of north latitude. Although American and European representatives are alike in appearance, life history and habits, their ranges do not overlap. Therefore, the two stocks may be regarded as being completely separate.

While the mackerel is found from Black Island, Labrador, to Cape Hatteras on the American side of the Atlantic, it is sufficiently abundant to support substantial commercial fishing only from the southern Gulf of St. Lawrence to Chesapeake Bay.

It has been generally accepted that the mackerel population on the east coast of North America has essentially two contingents, one spawning in the area south of Cape Cod and the other in the Gulf of St. Lawrence. These two contingents are geographically separate in summer due to the spawning locations. During the winter when they occupy a relatively narrow strip of water parallel to but some 20-100 miles distant from the coast, from Cape Hatteras northward to the southern edge of Georges Bank and possibly as far north as Sable Island, there appears to be substantial intermixing in the area south of Cape Cod.

The southern contingent migrates from its offshore overwintering area toward the Virginia, Maryland, and New Jersey coasts in April and then northeastward to occupy the western part of the Gulf of Maine in summer. The northern contingent migrates from the overwintering area towards the outer coast of Nova Scotia in late May, then moves into the Gulf of St. Lawrence and southeast of Newfoundland. Juveniles appear to follow the same pattern about a month later but usually closer to shore than adults. During these spring migrations, it has been assumed that the two populations are joined by scattered schools which move in from directly offshore.

For a short time in May, both contingents mix off southern New England in their northward migration but otherwise their courses are fairly independent. In September, mackerel begin to leave their summer habitat in the most northerly regions and by December have left all coastal waters for the zones of warm water which flank the outer edge of the continental shelf.

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*Includes catch from subarea 6

During the summer fishing season, the mackerel is most abundant in coastal waters, commonly in water temperatures between $8^{o}$ and $20^{o}C$ but commercial catches are sometimes made in water as cold as $7^{o}C$.

While mackerel spawning grounds have been found from Cape Hatteras to the southern coast of Newfoundland, there are two principal spawning areas - a southern area from Cape Hatteras to Cape Cod and a northern area over the Magdalen shallows in the Gulf of St. Lawrence. Spawning begins when the water is warmed to about $8^{o}C$, usually, in late May to mid-June along the Nova Scotian coast and in June and July in the Gulf of St. Lawrence.

Over 50% of the males and females spawn for the first time when 2 years old; almost all spawn by the time they are three. Mackerel are pelagic spawners, that is they spawn in the water column and their eggs remain suspended in the water rather than being laid on some substrate. As such, mackerel are not limited to spawning in a certain area because of spawning bed requirements and thus once they are in their spawning area - either Gulf of Maine or Gulf St. Lawrence - the females can shed their eggs whenever the eggs are mature and the water temperature is suitable.

In the Gulf of Maine, mackerel grow to 5 cm in the first 6-8 weeks after hatching and may attain 35 cm by the end of the second year; after the third summer, they grow very slowly so that in their 8th year they average about 43 cm.

Mackerel feed at or near the surface waters both by active pursuit and by filtering large volumes of water. They subsist chiefly on zooplankton such as copepods, euphausids, and other small crustaceans but may also prey on larvae and juveniles of such pelagic fish as herring when available. They in turn are preyed upon by a wide variety of fish, porpoises and whales.

While mackerel are caught from the Bay of Fundy to Labrador in Canadian waters, the best catches are made in southwestern Nova Scotia and in the Gulf of St. Lawrence around the Magdalen Islands, Prince Edward Island, and Cape Breton.

Equipment

Boats — Vessels of various materials and size are employed. Wood and steel hulls are used with diesel or gasoline engines; tonnages range from class 1 (0-24.9 tons) to class 4 (150-499.9 tons) for the offshore vessels which use purse seines, midwater trawls or handlines. Smaller vessels usually of wood construction and less than 25 tons are used for setting and fishing traps, weirs, beach seines and gill nets.

Gear Purse seines came into general use after 1870 and have historically been one of the most important methods of capture. Large purse seiners from Prince Edward Island and small, inshore seiners from New Brunswick and the Gaspe still account for more than one third of the Canadian catch. In the Gulf of St. Lawrence they are generally small nets which are usually handled by hand. Power winches are not used as in the case of herring.

Fixed and drift gill nets are used in most areas to catch bait and to supply canning plants in Prince Edward Island and the Bay of Chaleur with fish. They account for more than one quarter of the Canadian catch. Trap nets form the basis of the Cape Breton fishery which consistently records the largest catches in the Gulf. Beach seines and weirs, the latter designed primarily for herring, also take significant amounts of mackerel.

Midwater trawls and otter trawls are used by Bulgaria, Romania and the USSR on vessels in tonnage classes 5 (500-999.9 tons) to 7 (2000 tons and over).

Hook and line are used commercially around the Magdalen Islands and off Prince Edward Island.

Operations

Season

4ST May through November peaking in July. In 1973, more than half the catch taken by purse seine, one-quarter by gill net.

4Vn May through November peaking June and October during migration. In 1973, more than half the catch taken by purse seine, one-quarter by trap and weir.

4W May through November peaking in June with a smaller peak in November. In 1973, one-half the catch taken by gill net.

4X May through December. One-half the catch taken by trap and weir in 1973, peaking July to September, one-third by gill net.

Fishing base (ports) In Newfoundland, primarily on the east coast from Cape Norman to Cape Bonavista; in Quebec, the eastern portion of the north shore, Gaspe North, Bay of Chaleur and Magdalen Islands; in Prince Edward Island, the northwest; New Brunswick, the Bay of Chaleur and east coast; in Nova Scotia, ports in Cape Breton Island, Halifax County, Lunenburg and the eastern counties.

Regulations

To date there is no size limit or mesh size limit.

Quotas 1975

| | Allocation in Metric Tons | |
|---|---|---|
| | Canada | Total |
| Subareas 3 and 4 | 19,000<br>(20,000)* | 70,000 |
| Subarea 5 & Statistical Area 6 | 7,500 | 285,000 |

Catch composition

Frequently taken with herring and flounder.

Annual production

During the period from 1959 to 1966, 45% of the Canadian catch was taken from the Gulf of St. Lawrence and Newfoundland waters (4RS, T and Subarea 3) and 55% from the Atlantic coast of Nova Scotia and the Bay of Fundy (4Vn, W, X). While Canadian landings doubled between 1964 and 1973, the percentage of total catch decreased from 84.5% to 6.1% largely due to the entry of Russia, Poland, East Germany and Bulgaria into the fishery.

Product

From the 21,619 metric tons landed in Canada in 1973, 4,615 m.t. were sold round or dressed fresh or frozen; 7,841 barrels (90.72 kilograms each) of pickled mackerel round or dressed were produced, 7,201 barrels of pickled fillets, and 47,553 cases (20.41 kilograms each) of canned mackerel.

Channels of disposal

Of the above, 1,084 metric tons were exported whole or dressed frozen, 1,037 m.t. whole or split, pickled and 553 m.t. filleted and pickled.

*estimate of catch outside convention area

Capelin *(Mallotus villosus)*

Traditionally the annual capelin spawning on the beaches of Newfoundland has provided the local population with a ready source of food, bait and fertilizer. As the resource is available close to shore during three months of the year, uses have tended to be immediate and limited.

The capelin is a coldwater, pelagic inhabitant with circumpolar distribution extending into northern areas of the Atlantic and Pacific Oceans. In the Canadian area of the northwest Atlantic, capelin are distributed along the Labrador coast southwards to the Gulf of St. Lawrence wherever suitable spawning areas exist. Capelin are abundant on the north shore of the Gulf of St. Lawrence as far as the mouth of the Saguenay River. They are less abundant over the Magdalen shallows, irregular in the Bay of Fundy and rare in the Gulf of Maine.

Four stocks have been identified in the Newfoundland area (Fig. 24). It is now thought that a Labrador northeast Newfoundland stock may actually be subdivided into a Labrador and a Notre Dame Bay stock. The Northern Grand Bank-Avalon stock is characterized by a movement of mature capelin from the western and northwest slopes of the Grand Bank to spawn inshore on the beaches of eastern Newfoundland, the Southern Grand Bank stock migrates to the southeast shoal for spawning purposes and the St. Pierre-Green Bank stock may spawn on these banks as well as inshore on the south coast. Stock separation is complicated by the presence of some capelin near the coast during the winter and spring months.

The capelin is a fish of the high seas, coming inshore to spawn on beaches of fine gravel 5-15 mm (0.2-0.6 inches) in diameter when water temperatures range from $5.5^{o}$-$9^{o}$C. It also spawns on the southeast shoal of the Grand Bank at a depth of 45 m and temperatures from $2.5^{o}$-$4.5^{o}$C. On the beach, large quantities of capelin spawn just where the waves break over the beach leaving some fish stranded in the process.

Spawning occurs from early May on the south shore of the Gulf of St. Lawrence into September in northern Labrador, taking place chiefly at night. Males arrive at the spawning ground first and remain there for a long period. Females arrive later, collect one or more males, spawn on the beach, then move offshore leaving the partly spent males to spawn again. Preliminary studies have shown that 70% of the females and 90% of the males die after spawning.

By the first winter the larvae reach a length of 2.5-3.8 cm and at one year average 9 cm. The largest fish are males, 3, 4, and 5 years old, measuring from 12-20 cm; the females are slightly smaller.

The food of small capelin consists almost entirely of copepods. Large ones eat amphipods, euphausids, decapods and shrimp. On the spawning ground they eat the eggs of their own species. Capelin are eaten by cod which follow them to the spawning grounds and are probably their chief predator, and also by salmon, dogfish, seals, whales and sea birds. Many other fish feed upon capelin to a lesser extent.

Equipment

Boats — Ring net vessels (trap-boat longline type with wheelhouse aft and gill net longliners) working in pairs and handled by four men each are used in winter and spring. These are wooden vessels of class 1 (0-24.9 tons), a smaller vessel of 5 m or more is used as the tow-off vessel. Midwater trawlers are used offshore; vessels (over 65 ft (19.8 m) in length) are modified for use with midwater trawls; each requires a 3-man crew. Otter trawlers of class 4 (150-499.9 tons) to 7 (2000 tons and over) have been used mainly by the USSR and Poland since 1972 for offshore fishing.

Gear — Dip nets, cast nets and beach seines are used traditionally in Newfoundland to fish from the beaches during spawning season. Ring nets were adapted in 1974 from the technique used in Scotland for hundreds of years for harvesting herring and mackerel. Fishing with ring nets must be carried out in relatively smooth waters as vessels come together to complete the set. Midwater trawls, specifically the Canadian Diamond midwater trawls, have been most successful in offshore exploitation by Canadian vessels. They have proven more versatile than purse seiners since they are more suited to the vertical movement of capelin and can operate under more adverse weather conditions. The capelin liner for a trawl has a 5/8 inch (1.6 cm) mesh.

Operation

Season — Fishing from the beach and inshore areas during spawning starts in May in the Gulf of St. Lawrence and ends in Labrador in early September; offshore fishing continues throughout the year.

Fishing base (ports) — In Canada, only small quantities are landed commercially and these primarily in centres in Newfoundland, such as those in the Conception Bay area and the Avalon peninsula.

Regulations

Quotas 1975

| Stock Region | Canada (Metric Tons) | All Countries (Metric Tons) |
|---|---|---|
| 3L+ | 10,000 | 50,000 |
| 3NO | 11,000 | 126,000* |
| 3L, 3N, 3O and 3Ps | | 148,000 |
| 3Ps | 9,000 | 10,000 |

+capelin fishery restricted to a designated area offshore, excluding the southeast coastal waters of Newfoundland.

*plus a maximum of 5,000 m.t. each for countries other than Canada, Norway and USSR.

Size: Mesh size not regulated, 5/8 inch (1.6 cm) used.

Catch composition

Catch consists principally of capelin since they are fished in schools; occasionally a few predators such as cod and dogfish are taken.

Annual production

Since 1950, the need for capelin has declined because of the change in cod fishing practices, decline in family gardens and use of dog teams. Since 1972 however, there has been an increasing interest in preparing capelin for human consumption in Canada and a tremendous increase in fishing effort by other countries, particularly USSR and Poland.

Product Prior to the mid 1940's substantial quantities were used, principally in Newfoundland, as bait to catch cod, as garden fertilizer, and when salted and dried as food for dog teams. Currently small quantities of capelin are being preserved for human consumption by freezing, salting, and drying, smoking and canning. These products are considered to be delicacies and are enjoyed in many homes in Newfoundland. They are found in most food stores in the province and increasing quantities are being prepared for export. There is an increasing interest in utilizing capelin as a food product and for fish meal and oil, primarily due to the rapid decline in herring landings.

Alewife *(Alosa pseudoharengus)*

As indicated by its specific name, *pseudoharengus*, the alewife or gaspereau resembles the herring but may be distinguished from it by its greater body depth. The alewife differs from the shad in that it has only one black spot posterior to the upper edge of each gill slit.

The range of the alewife extends from Newfoundland and the southern Gulf of St. Lawrence to North Carolina. It occurs, apparently landlocked, in most of the Great Lakes and in certain lakes in Maine and New York states. An anadromous species, it ascends most Canadian rivers from the Bay of Chaleur southward at spawning time.

The spawning migration from the sea is related to river temperature. Maturing alewives are caught in Saint John Harbour from late January on but they do not move up river until early April. Migration may occur thereafter in the tributaries of the Bay of Fundy over a period of two months. In the tributaries of the Gulf of St. Lawrence the run is a little later and in the Margaree alewives first appear between May 4 and 27 and last from 4-6 weeks. Spawning only commences when water temperatures are between 9° and 12°C. After spawning the spent alewives return to sea and may spawn again. While spawning usually occurs prior to July, alewives have been observed in ponds in Prince Edward Island as late as August. Except in landlocked waters, fry move downstream prior to the end of September.

Alewives mature in 3 years in Massachusetts and 4 years in Maine. In the Maritimes, 5-year-old males average 18.4 cm long and females of the same age, 20 cm.

The alewife feeds chiefly on planktonic forms ranging from amphipods, mysids, and copepods to fish eggs. Landlocked alewives eat amphipods and insect larvae, principally chironomids. At sea the alewife fry are eaten by eels, yellow perch, white perch and other predators, the adults by seals.

Extensive annual mortalities of alewives in early summer in the St. Lawrence Great Lakes are associated with their entrance into warm water from deep, cold water.

The fishery

Alewives are caught in greatest quantity in New Brunswick and Nova Scotia, Maine and Massachusetts.

Equipment

Boats — Small vessels under 25 tons.

Gear — Alewives are caught commercially in weirs, in gill nets, trap nets and by dipping (dip net) in rapids or eddies in rivers and streams.

Operation

Season Alewives are fished primarily during spawning runs. The open season is from May 15–June 30 in waters flowing into Northumberland Strait, May 15–June 16 in the county of Northumberland; all others in New Brunswick from January 1–June 30. In Nova Scotia it extends from May 14–July 16.

Regulations

In New Brunswick, there is a weekly closure on Saturday and Sunday. Temporary nets must leave one third of channel open, set net two-thirds of channel at low water. Gear must not be operated within 250 yards (228 m) of nearest trap or pound net. Gill nets must be set in a straight line and must not exceed 18 m in length. All gear except dip nets must bear license tag in prominently displayed place.

Mesh size: Must not be less than 1 1/2 inches (3.8 cm) or more than 3 1/2 inches (8.9 cm).

Production

The Canadian catch reached a maximum of 17,200 m.t. in 1952. However, this is not necessarily a measure of abundance as market conditions determine the extent to which the fishery is exploited.

Product Alewives, although very bony, are used to some extent fresh locally as food and also for bait and fertilizer and processed as meal and pet food. In 1973, 7,693 barrels of 200 lb each (90.72 kg) of pickled alewives were produced and 1,466 m.t. exported to unspecified countries.

<u>American smelt</u> *(Osmerus mordax)*

The smelt is an anadromous species which, like the salmon, lives in salt water as an adult but returns to fresh water to spawn.

Along the North American coast the range of the smelt extends from Hamilton Inlet, Labrador, as far south as Virginia. It has been particularly abundant in Miramichi Bay and River and occurs as a landlocked form in Lake St. John and Lake Champlain, Quebec; in Grand Lake, Nova Scotia; in Lake Utopia and surrounding lakes in New Brunswick and in Newfoundland lakes. It has thrived in the Great Lakes system to the extent that it has become both a useful commercial species and an eagerly sought sports fish.

The adults live in coastal waters, seldom wandering far from their home estuaries where they accumulate in the autumn. In the Miramichi they begin to move upstream in March, arriving at the head of tide of the small streams late in April. The run extends through May and spawning takes place usually at night after the spring freshets slacken. Males arrive on the spawning grounds ahead of the females and stay longer. Many smelt, mostly males, die after spawning.

Great numbers of spawning smelt and large masses of dead eggs embedded in fungus are often found concentrated below impassable obstructions in spawning streams. When such obstacles are removed, smelt move upstream, distribute eggs over a much wider area, thereby increasing larval production greatly.

The fry are carried into the tidal estuaries soon after hatching and are to be found there after early May. Fry which hatch early grow to 6 cm by November and at 2 years may be ready for commercial use. Two- and 3-year-old smelt 12.5-20 cm long make up the bulk of the commercial catch, although a few 4- to 6-year-old fish up to 30 cm long are caught.

The fry eat a variety of small planktonic forms and as they grow include in their diet amphipods, euphausids, mysids, shrimp, marine worms and any small fish that may be available. Smelt are eaten by cod, salmon and other large fishes, by seals, cormorants and mergansers.

<u>Equipment</u>

Boats — Open water gear is used from catamarans and man-propelled scows 6-9 m long in the Miramichi.

Gear — Gill nets are used in open water in the autumn. Bag nets set on stubs or pickets in open water or box nets set under the ice in the estuary are used for most fishing. A mesh size of 1 1/2" (3.8 cm) is sometimes used instead of the legal 1 1/8" (2.85 cm) mesh in order to decrease the number of small fish taken.

Operations

Season The season extends from December 1 to February 15 but at times has been opened as early as October 15 and/or extended to the end of February. Fishing in the Miramichi during the first part of the season takes place only in the river below Newcastle and in the tidal portion of large tributaries. No fishing takes place in Miramichi Bay or its bordering bays until ice forms. By mid-December open water fishing gear is replaced by box nets.

Fishing base (ports) The heart of the east coast commercial fishery is the Miramichi area in New Brunswick.

Regulations

There is no minimum legal size for smelt. The size of fish taken is determined by the minimum mesh size 1 1/4" (3.18 cm) for gill nets and 1 1/8" (2.85 cm) for box nets. Smelts taken by dip net must be used for domestic purposes only and each fisherman may have no more than 60 smelts in his possession at one time.

Production

Experimental data indicate that the commercial smelt fishery in the Miramichi takes only about 4% of the stock each year.

Product

The catch frozen on the ice is graded commercially into small under 10.2 cm, medium 10.2-14.0 cm, number one 14.0-17.8 cm and extra over 17.8 cm.

Channels of disposal

In 1973, 775 m.t. of sea smelt, half the total production, were exported frozen.

## THE LARGE PELAGIC FISHES

### Swordfish *(Xiphias gladius)*

Because of their great size, activity and power, swordfish are highly prized by the deep sea angler. They are also a valuable commercial species, although the Canadian fishery ceased in 1971 when the level of mercury in a majority of fish was found to be unacceptable, i.e., above 0.5 ppm.

Swordfish are found through the tropical and temperate Atlantic, Pacific and Indian Oceans. In the West Atlantic they have been reported from Argentina to Flemish Cap off the east coast of Newfoundland, occurring mostly where temperatures exceed 15°C. Migratory cycles are poorly understood. Swordfish move north as waters warm in summer, with large fish moving into relatively shallow water over the continental shelf. In the Newfoundland area, the main fishing ground has traditionally been on the southwest Grand Bank. Recent studies indicate that swordfish tend to stay in the same general area all summer and return there in subsequent years. With the onset of colder weather, they move offshore and presumably southward towards the spawning areas. Small fish tend to stay over deeper water where surface temperatures exceed 20°C.

The only area where swordfish are known to spawn is in the Mediterranean but the presence of very small individuals in widely separated areas near the Caribbean Sea indicates the presence of discrete spawning areas in the West Atlantic. No satisfactory age determinations have yet been made for swordfish but they are thought to grow rapidly and reach approximately 5, 15, 45, 75 and 125 kg at the end of successive years.

Swordfish are powerful, fast, predatory fish. In general, any species that is common in an area appears to serve as food, particularly schooling species such as herring and mackerel and midwater species such as lanternfish, barracudinas and squid. Large swordfish at the surface over shallow water (less than 180 m) in the summer normally feed at or near the bottom on silver hake, redfish, butterfish, etc. During summer months, swordfish can be found basking ("finning") at the surface, particularly on calm, sunny days. It is thought that at such times they are seeking the warmest available water after feeding near the bottom in water below 10°C. It was this behaviour upon which the traditional harpoon fishery was based. Individuals probably do not form schools but may aggregate in areas of rich feeding, although even then they tend to keep at least 10–15 m apart.

Toothed whales, marlins and large sharks are perhaps the only species capable of attacking large swordfish.

Resource

In Canada, swordfish were apparently not used for food until the beginning of the century. As a result, the first official records of commercial catches date back to only 1909. During the 1950's and early 60's, there was a sixfold increase in landings due both to the development of an offshore fleet and the introduction of longlines which permitted fishing under adverse weather conditions.

Equipment

Boats — Inshore - broad, wooden vessels, 10-15 m in length were formerly used for harpooning, then for longlining. Vessels used for harpooning were equipped with a stand for a "striker" on the bowsprit and masts were rigged for observers.
Offshore - longliners of 20 m or less and draggers 20-35 m. Some of these were converted for offshore lobster fishing in 1971.

Gear — Harpoons - By the early 1960's only 15% of the swordfish were still taken exclusively by harpooning (over the continental shelf near the 100-fath contour). Longlines - Floating longlines eliminated the need for individual sighting and were more effective over deep water and under adverse weather conditions. They also greatly reduced the time involved in capturing swordfish.

Operation

Season — Swordfish usually appear in Canadian fishing areas in early June and remain until mid-September or a little later. Landings peaked in July-August.

Fishing base (ports) — Inshore vessels were based almost exclusively in Cape Breton, offshore vessels at 10-12 ports including North Sydney, Louisburg, Glace Bay and Bickerton in eastern Nova Scotia, and a comparable number in western Nova Scotia including Halifax, Lockeport and Yarmouth.

Regulations

None prior to 1971; Swordfish is currently not permitted on the Canadian market.

Channels of disposal

Ninety percent of the Canadian catch was exported to the United States fresh or frozen. Demand for swordfish in other countries continues to increase, particularly in Japan, and the 14 m.t. landed in 1973 were caught specifically for export.

Tunas

While large catches of bluefin tuna continue to be made in the Atlantic as a whole (15,600 m.t. in 1973), the catch is less than half of that recorded in 1963, the year prior to peak build-up of the seining fleet first introduced in 1958. Only a small proportion of this catch was from the ICNAF statistical area, some 1,500 m.t. in 1973 for example.

While a variety of tunas other than bluefins are landed mainly at the processing plant in St. Andrews, New Brunswick, the volume caught within the area under consideration is so small as to leave these tunas in the "other commercial species" category of this report (116 m.t. in 1974). Of about 8,000 m.t. of tunas recorded as landed in the Maritimes and Quebec in 1973, 7,000 tons were attributed to New Brunswick, where the value landed of $3.5 million makes it the third most valuable fishery in gross rather than net terms. In Prince Edward Island the operators average a net return of $4,000 for a 3-month season.

Because of their size and the sport fishing activity and its associated glamour, the bluefin tuna attracts considerable interest along the Atlantic coast and in the Gulf of St. Lawrence, especially in Prince Edward Island. Wedgeport, N.S., declined as the sport fishing center in the early 1960's, and has been replaced by North Lake, P.E.I. The island fishery accounted for over 1,000 giant bluefin tuna (300 lb plus) in 1974, compared with 849 in the St. Mary's Bay fishery and over 150 in the rest of the Atlantic provinces.

The build-up of the Prince Edward Island rod and reel fishery has been nothing short of explosive (Table 5). The fish have been sold to Japan in 1973/74, which is possible because the safety level accepted for mercury concentrations in that country is higher than in Canada. The 573 fish sold in 1974 averaged $2.53 per pound, but recent catches by the Japanese fleet in the Mediterranean render this single outlet unreliable. The sport fish regulations in the Gulf of St. Lawrence for 1975 include limitation of gear to rod and reel, line of less than 300 lb breaking strain, less than 30 ft of double line, a maximum of two fish per day per boat, and a series of 10-week seasons applied to six separate areas. No new licenses were issued. It remains to be seen if these measures will be enough to preserve the giant bluefins which show classic signs of facing extinction. The smaller young fish are susceptible to the purse seiners, and do not seem to be developing recruits to the ranks of the giants. The world record for size was broken twice in 1974, and it is postulated that the giants are the last of a disappearing resource.

Table 5. Development of the P.E.I. bluefin tuna fishery 1967-74*

| Year | No. of fish | No. of boats |
|---|---|---|
| 1967 | 5 | 1 |
| 1968 | 14 | 5 |
| 1969 | 31 | 6 |
| 1970 | 99 | 7 |
| 1971 | 201 | 30 |
| 1972 | 478 | 38 |
| 1973 | 724 | 72 |
| 1974 | 1,047 | 144 |

*From P.E.I. Bluefin Tuna Research Programme, 1974, p. 5. Other data in the report show similar but not identical figures.

## THE SALMONID FISHES

The recreational fisheries are not covered by this report, which means that Atlantic salmon is discussed but not the various trout species. While salmon is not a major component of the total landed value of fish (1950-1970 average between 2 and 4% of the total landed value in Nova Scotia, New Brunswick, 6% in Newfoundland, 1973), the $3 million gross value in Newfoundland (1973) has to be added to the value of the sport fishery which lands only about one twentieth of the weight caught but involves peripheral sources of income. The annual gross expenditures by anglers may be tabulated as follows*:

| License held | $ Per capita fisherman | $ Total |
|---|---|---|
| Resident salmon | 75-250 | 1.1-3.6 million |
| trout | 50-150 | 2.0-5.9 " |
| Non-resident salmon | 200-500 | 1.2-2.9 " |
| trout | 100-275 | 0.5-1.3 " |
| Total salmon | | 2.2-6.5 " |
| trout | | 2.4-7.1 |

Many more people fish trout than salmon, of course, and recreational trout fisheries can be supplied with less difficulty. Significant problems arise when interfacing the needs of salmon and of a modern industrial state at critical points along each river, such as narrows and falls usable for power generation, and estuaries where ports and their associated industries are commonly developed. Poaching for salmon abstracts a further quantity from the stock, and native rights to netted salmon have to be considered in management schemes. However, the international appeal of this particular salmon, as opposed to the numerically dominant western salmon species, focuses attention on it to an exceptional degree, giving managers an opportunity to display their ability to protect a resource that passes check points in a predictable manner, and providing one of the simple explanations for the need to keep water courses unpolluted.

*Maritime Provinces Water Resources Study - Atlantic Development Board, 1969, App. IV.

Atlantic salmon *(Salmo salar)*

Its challenge to anglers and its superior quality as a food fish have made the Atlantic salmon a luxury product for which demand exceeds the supply when taken either by sportsmen or commercially.

The Atlantic salmon spawns in rivers and streams tributary to the North Atlantic area. In the west, its range is from southern Maine northward through the Atlantic provinces of Canada as far as Ungava Bay, Iceland and at least one river in Greenland. Damming of rivers, pollution, siltation of spawning beds and increased stream temperatures due to land clearing and agriculture have caused salmon to disappear or become markedly reduced in numbers in many rivers where they were formerly abundant.

Recent work has shown the existence of local populations in the Maritimes which are clearly different genetically from those in other river systems.

The salmon is an anadromous species; the young salmon (parr) remain in fresh water a variable length of time, usually from 2-4 years depending upon water temperature and food supply. In the spring of their final year, the parr, then 12-15 cm long, take on a silvery appearance and undergo physiological changes which prepare them for the saltwater environment they encounter when they go to sea in May or June, as smolts.

Growth in the sea is rapid. When some salmon return to fresh water, as "grilse", after one year or a little more at sea, they weigh from 1.5-3 kg. It is now clear that substantial portions of that part of the smolt run from many North Atlantic countries destined to return as 2-sea-year salmon migrate to Greenland and adjacent waters in the Labrador Sea. Like the grilse they are voracious feeders, taking chiefly fishes, crustaceans and molluscs, but in such quantities that they average from 4-7 kg by the time they return to fresh water to spawn. Occasional records indicate that salmon may live up to 9 years and reach weights above 25 kg.

Unlike the Pacific salmon, the Atlantic salmon may return to sea as "kelts" after spawning and may do so, in rare cases, as many as five times. Kelts tagged in the Annapolis and Margaree Rivers in Nova Scotia have been shown to emigrate to Newfoundland and large salmon tagged off Port aux Basques, Newfoundland, have been caught in the Miramichi and Restigouche Rivers in the Gulf of St. Lawrence.

Studies show that most mature salmon return to the river they left as smolts, entering at the time of a freshet when the river is full of relatively clean, fresh water. Some enter fresh water in spring or early summer as "early run" fish; many enter in late summer or early autumn and are designated as "late run" fish. Salmon and grilse eat little if at all while on spawning migration, despite the fact that anglers use artificial flies as bait.

To a large extent young salmon in rivers depend on larval and mature aquatic insects and terrestrial insects that fall on the surface of the water for food, together with a few aquatic annelids and molluscs. While in fresh water, the young are preyed upon by eels and other predacious fish and by birds such as mergansers and kingfishers. They are extremely susceptible to insecticides such as DDT, mine wastes and agricultural pollution. At sea, salmon are eaten by pollock, tuna, swordfish and sharks. Seals are reported to catch a few and certainly do rob fishermen's nets to an aggravating degree.

Equipment

Sport fishermen, fishing freshwater streams for returning grilse and salmon, use fly rods, and by law in Canada may use only unweighted artificial flies with only one fly at a time on the line. Commercial fishing is permitted only in tidal waters and with nets. Small wooden boats are used for setting trap nets and gill nets in inshore areas. Drift nets were used extensively in the open sea off the St. John and Miramichi Rivers in New Brunswick and Port aux Basques in southwest Newfoundland prior to 1972. Salmon are also caught incidentally in weirs, cod traps, etc.

Operation

Season — The season for both angling and commercial fishing is specified by area and by province. This generally falls within the period March 31-October 16 for angling and April 15-August 15 for commercial fishing. In Newfoundland, however, commercial fishing is permitted until December 31.

Fishing base (ports) — Major commercial salmon fisheries were centered around Escuminac (at the mouth of the Miramichi) and Saint John, New Brunswick; Port Carleton on Chaleur Bay in Quebec, and many small communities such as Port aux Basques in Newfoundland.

Regulations (subject to change)

Angling is restricted in Nova Scotia and New Brunswick to the period between 2 hours before sunrise and 2 hours after sunset. Each angler is restricted to one attended line with an artificial fly and no more than 2 hooks integral with the fly in Nova Scotia and New Brunswick, 3 in Newfoundland. The daily catch is limited to 2 fish in New Brunswick, 3 in Nova Scotia and 4 in Newfoundland.

Commercial fishing is currently banned in New Brunswick and the Gaspe; drift net fishing is banned off Port aux Basques,

Newfoundland, but commercial fishing is still permitted on the north shore of the Gulf of St. Lawrence and in Nova Scotia, Newfoundland and Labrador.

The use of gill nets, trap nets, pound nets and weirs is generally permitted in the fishery. A minimum extended mesh diameter of 5 inches (12.7 cm) has been generally established to prevent the taking of grilse; however, in Newfoundland in the Bay of St. George and a designated area on the southeast coast, a 4 1/2-inch minimum has been approved. A minimum legal weight of 5 lb (2.26 kg) has been established in New Brunswick and 3 lb (1.36 kg) in Nova Scotia and Newfoundland.

Regulations for each province govern the size and placement of commercial gear, type of net filament, fishing on the week-end, use of artificial light at night and retention of spent salmon (kelt).

Special regulations govern salmon fishing by Indians living on reserves. Under the present New Brunswick Indian Food Fishery Policy, for example, a permit is issued in the name of the Band and Chief which permits members of the Band selected by the Band Council to fish a limited number of gill nets off the inhabited reserves. These gill nets are restricted in length in accordance with the area. While no season is imposed, catches must be used for food purposes only.

## Annual production

Historically, Newfoundland has taken a major share of the total catch of Atlantic salmon in Canada - as much as 80% in some years. Recently, salmon stocks on the Canadian east coast, as well as those from Europe, have been affected by the fortyfold increase in salmon landings off the west coast of Greenland between 1960 and 1971. This, together with pollution problems in the larger east coast rivers, has resulted in reduced landings since 1967 and the present ban on the commercial salmon fishery in New Brunswick and the Gaspe.

## Product

Salmon is essentially all sold fresh or frozen with only small quantities smoked, usually for home use. In 1973, 79 m.t. were exported fresh, and 621 frozen; of the latter, 147 m.t. were exported to the Federal Republic of Germany, 172 m.t. to the United States and 302 m.t. to other countries.

## THE INVERTEBRATE AND PLANT FISHERIES

### American lobster *(Homarus americanus)*

The lobster fishery started on a small scale over 100 years ago and since 1969 the lobster has consistently been Canada's most valuable marine species in terms of landed value. In 1973, the catch brought over $40 million to the fishermen.

The American lobster is specific to the northwest Atlantic where it is found from the Strait of Belle Isle in the north to North Carolina in the south. It is most abundant in Maine, southern Nova Scotia and the southern Gulf of St. Lawrence, thriving in coastal waters on rock bottom to depths of 75 m. Extensive stocks also occur offshore at depths of 90-550 m or more along the continental slope off southern Nova Scotia and the east coast of the United States. Studies of movements, body shape, parasites, blood proteins and enzymes support the conclusion that there is little intermingling between inshore and offshore stocks. Mating of hard-shelled males and newly moulted, soft-shelled females occurs mainly in summer.

In the first growing season lobsters moult five to seven times but less often each succeeding year. Lobsters weighing 225 g (1/2 lb) usually moult once a year and grow about 15% in length and 50% in weight. Older lobsters moult less and less frequently with age. By the time a lobster reaches a weight of 225 g and a length of 19 cm in the southern Gulf of St. Lawrence, it is judged to be 5 years old but no means of aging individual lobsters has yet been established.

In the southern Gulf of St. Lawrence, where water is warm in summer, a few lobsters mature when they are as small as 17.8 cm and weigh less than 225 g. Over half are mature at 22.8 cm. In the Bay of Fundy, where water is cooler in summer, the smallest mature lobsters are about 30 cm long and weigh 900 g.

Marked variations in lobster catches have led to the speculation that lobsters migrate from time to time. However, the results of extensive tagging trials have given no indication of mass migration or mass movements from deep to shoal water in spring. In shallow water, lobsters tend to remain hidden during the day, emerging at night to search for food which consists of a wide variety of bottom-living animals such as worms, crabs, fish, clams, mussels, starfish and sea urchins. Contrary to common belief, they are neither cannibals nor scavengers under normal conditions.

In the larval stage lobsters suffer heavy mortalities, being preyed upon by countless fish and other species. Only about 1% of those hatched survive to the settling stage. Newly settled lobsters are often eaten by small bottom-feeding animals and continue to be preyed upon while in their soft-shell, post-moult condition. Once lobsters reach commercial size their worst enemy is man.

Equipment

Boats — Boats used in the inshore fishery are mostly wooden motor boats 7.6-14.5 m long and under 25 tons - operated by one or two men each. The Canadian offshore fishery was initiated in 1971 when six refitted swordfish fishing boats, 20-30 m long, were granted licenses.

Gear — The lobster trap is the only legal way to fish lobsters in Canada. The traps most commonly used in the inshore fishery are two-compartment, wooden frame traps in the form of a half cylinder 0.76-1.22 m long, covered with wood laths and netting and baited with herring or mackerel. Escape is prevented by the funnel-like construction of the entrances leading into the first compartment and from the first to the second. Traps are usually weighted with rock to carry them to the bottom and when in use are marked by a buoy for identification and recovery. Regulations governing lath spacing were abolished in 1955 except in Newfoundland where a 1 3/4" (4.45 cm) lath space has been in effect for many years.

In the offshore fishery the traps most commonly used are similar to those described above but larger.

Operation

While the lobster fishery is big business, the primary producers are independent fishermen working in small boats. About two million traps, baited mostly with herring or mackerel, are set along the shorelines by 22,300 fishermen.

Fishing base (ports) — Lobsters are landed at hundreds of small ports scattered along the coastline of Newfoundland, Quebec and the Maritime Provinces. Along the north shore of the St. Lawrence and the Labrador coast, however, landings are negligible.

Regulations

The Canadian inshore lobster fishing grounds are divided into 19 lobster fishing districts or subdistricts that differ in size limits, fishing season or trap limits (Fig. 25). To ensure as good a hatch of larvae as possible, all of these regulations prohibit the sale of "berried" females carrying external eggs.

Fishing seasons

Seasons are prescribed by law, in relation to weather, ice conditions and other fisheries, and take into consideration seasonal quality, fishing effort, canning and marketing operations. In the Bay of Fundy and southwestern Nova Scotia the season is open for 6-7 months in the late fall, winter

and early spring. Since the late 1960's Sunday fishing has been prohibited. Elsewhere the season is open for about 2 months, usually in the spring.

Size limits

In the southern Gulf of St. Lawrence the minimum carapace length is set at 6.35 cm (2 1/2 inches) in order to allow the females to mature. In Cape Breton and Victoria counties, the size limit is 6.98 cm (2 3/4 inches), in Quebec including the Magdalen Islands 7.6 cm (3 inches). In the Bay of Fundy, the outer coast of Nova Scotia and Newfoundland, the size limit is 8.1 cm (3 3/16 inches).

Trap limits

Limits of 250-400 traps per boat were introduced in 1966 and restrictions on licensing of boats at a later date.

Permits

In the offshore fishery, permits have been issued to fish with traps beyond a line drawn 50 nautical miles (92.5 km) from shore.

Production

Over the past 56 years, the catch has ranged from a low of 12,400 m.t. in 1918 to a high of 23,500 m.t. in 1956. Although landings have dropped by about 15% over that in the period 1964 to 1973, the supply per capita of Canadian population has dropped much more rapidly due to an increase in population of about 14% over the period. In 1973, the inshore Canadian fishery contributed 15,658 m.t., the offshore fishery 489 m.t. Offshore lobsters landed weights average about 5 lb (2.25 kb) and inshore weights, including "canners", close to 1 lb (0.45 kg).

Product

In 1973, 10,228 m.t. were sold fresh or frozen and 27,433 cases of canned lobsters of 30 lb (13.61 kg) each were produced for a total product value of $64,712,000. The amount of lobster paste and tomalley now produced is insignificant in relation to the total value of other products.

Channels of disposal

While lobsters are sold to over 360 commissioned agents, it is estimated that fewer than 10 firms account for over 80% of lobster purchases.

Exports 1973

| Product | Country | Metric tons | Total Metric tons |
|---|---|---|---|
| Fresh or frozen | United Kingdom | 200 | |
| | Belgium-Luxembourg | 113 | |
| | France | 154 | |
| | United States | 7,267 | |
| | Other countries | 223 | 7,957 |
| Meat fresh chilled and boiled | Not specified | | 48 |
| Meat frozen | United States | 973 | |
| | Other countries | 124 | 1,097 |
| Canned | Federal Republic of Germany | 67 | |
| | United States | 19 | |
| | Other countries | 62 | 148 |

## Atlantic Snow (Queen) Crab *(Chionoecetes opilio)*

The east coast crab fishery has not been greatly exploited until recent years. Although the Canadian fishery for snow crab started in 1967, and is now fully exploited, other species such as the rock crab *(Cancer irroratus)*, the Jonah crab *(Cancer borealis)* and the deep sea red crab *(Geryon quinquedens)* are utilized only sporadically or experimentally. This is due either to limited availability, small size, low market value, high processing cost, or a combination of several of these factors. However, the growing market for crustaceans and the possibility of extracting crab meat by machine have improved the prospects for greater utilization of such species in the future.

Crabs of the genus *Chionoecetes*, to which the snow crab belongs, occur in the northwest Atlantic from Greenland down the Canadian coast into the Gulf of Maine and are most abundant in the Gulf of St. Lawrence and off Newfoundland. They are most commonly found on mud or sandy mud bottoms at depths of 70-450 m in temperatures ranging from $-1^{\circ}$ to $4.5^{\circ}C$. Localized movements associated with mating do occur but extensive migrations are unknown. Most males are mature and can mate successfully at a shell width of 2 1/2 inches (6.35 cm). As in the case of lobsters, mature, hard-shelled males mate with soft-shelled females that have just moulted. Unlike the lobster, the female does not moult again after reaching maturity and therefore never reaches commercial size. The female does, however, produce several batches of eggs, all fertilized by sperm from previous matings.

Eggs are carried by the female for about 12 months then hatch. The larvae rise to the surface for a period of 3 months or so during which they moult twice, then gradually sink to the sea floor often many miles from where they hatched. Growth occurs with each successive moult. Crabs of commercial size grow about 15% in width and 60% in weight at each moult. Age is difficult to determine but crabs at the minimum size of commercial acceptability (4 inches or 10.3 cm in width) are thought to be about 10 years old and may reach a maximum size in 15 years.

Snow crabs are omnivorous; their diet includes marine bivalves, worms, small crustaceans, brittle stars, detritus and even fish.

### Resource

Over 75% of the catch is landed from the Gulf of St. Lawrence. A large part of the balance is taken in the deeper waters of Newfoundland bays (over 180 m).

### Equipment

Boats — Boats used in the Gulf are 15-18 m long and usually converted from gill netting, seining or dragging for groundfish. In Newfoundland, smaller boats are used.

Gear In the Gulf of St. Lawrence steel frame traps which vary in size up to 2 x 2 x 1 m are used. These have a funnel-type opening at one or both ends leading into a single chamber. The traps are covered with a 10-cm mesh net (frequently of propylene) that allows the females to escape. Depending upon its size and the size of traps used, a boat may work from 35-125 traps. When baited, these traps are set out singly and hauled daily by ropes which lead to surface buoys. In the deep Newfoundland waters, small conical traps are used. These are joined together in lines of about 10 traps before setting.

Operations

Effort In the Gulf, fishing trips last from 1-4 days, depending on distance from fishing ground to port.

Season In the Gulf, fishing is restricted to ice-free months and most crabs are landed from May through September. In some areas of Newfoundland year-round fishing is possible but most landings are made in spring and summer when fishing is less hazardous.

Fishing base (ports) In the Gulf, 75% of the catch is landed at Shippegan, Caraquet and the Gaspe area.

Regulations Minimum carapace width is 4 inches.

Product Crabs are stored alive on ice until landed, then butchered within a few hours of delivery. The leg sections are washed, cooked and cooled in the shell. Meat is shaken out by hand to obtain a high quality meat yield of 20-25% of live weight. When the meat has been cleaned it is either quick frozen or processed in cans.

Disposal Most of the meat is exported to the United States and Europe.

Landed weights of snow crab in Canada

Metric tons

| | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|
| Inshore | | 1,228 | 1,283 | 1,350 | 2,007 | |
| Offshore | | 6,442 | 5,468 | 5,696 | 7,807 | |
| Combined | 8,150 | 7,670 | 6,751 | 7,046 | 9,814 | |
| All crabs, Canada | | 7,850 | 6,880 | 7,100 | 10,100 | |
| Landed weights of all crabs, all countries, convention area | | | | 7,141 | 10,472 | |

1973 Canadian snow crab landings by province

| | |
|---|---|
| Nova Scotia | 110 m.t. |
| New Brunswick | 5,908 |
| Quebec | 1,144 |
| Newfoundland | 2,652 |
| | 9,814 |

Product 1,316 m.t. in shell and shucked, fresh and frozen crab - Atlantic coast, all species 1973. Pacific coast 523 m.t.

Canadian exports of crab
(all species, both coasts)

| Country | Metric tons<br>Fresh or frozen | Canned |
|---|---|---|
| Sweden | 150 | |
| United States | 955 | 99 |
| Netherlands | - | 110 |
| France | - | 214 |
| Other countries | 230 | 80 |
| Total | 1,335 | 503 |

Great Northern Prawn (Northern Pink Shrimp)

The shrimp fisheries of the Atlantic coast of Canada harvest mainly the species *Pandalus borealis* but there is a small fishery for a smaller species, *P. montagui*. The great northern prawn is widely distributed in the northern waters of the world. In American waters it is found from northern Labrador to the Gulf of Maine, although areas of great abundance are of limited occurrence. In Canadian waters, shrimp grounds have been located along the north shore of the Gulf of St. Lawrence, along the south and southeast coast of Newfoundland, the southeastern and western portions of the coast of Nova Scotia and near Grand Manan in the Bay of Fundy (Fig. 26). The most important of the east coast shrimp fisheries is found, however, in the Gulf of Maine.

The great northern prawn prefers water temperatures between $3^{o}$ and $7^{o}$C and locations where the bottom is muddy and has a high organic content. In the Bay of Fundy such conditions occur in relatively shallow water during the winter months. The main fishery therefore takes place in winter. At that time the females are found in depths of about 25 fath where they release their larvae. In the Gulf of St. Lawrence and along the Labrador coast the shallow water is too cold and the females stay in warm water (about $4.5^{o}$C) which can be found all year around at depths greater than about 180 m. In general, fishable concentrations normally occur at depths between 54 and 400 m.

On the Atlantic coast of Canada the great northern prawns lay their eggs in the fall (September to October). The eggs remain attached until they hatch in March and April. By the end of the first year of growth they have become closely associated with the bottom, although usually in shallower locations than their parents. In their third summer essentially all become mature males, in the autumn they mate with older females and during the subsequent winter and spring change sex to become females. In their fourth year they lay their eggs. M.ny lay only one batch of eggs and die after these hatch in the spring; others may lay eggs on two or more occasions and in the process attain ages of 5 or more years.

When shrimps are young they moult frequently and grow rapidly. As they grow older they moult less frequently; females of course do not moult while carrying eggs and thus do not grow during the 5-6 months in winter and spring. In the Gulf of St. Lawrence the great northern prawn reaches a length of about 5.3 cm at the end of one year, 10.7 cm at the end of 3 years and 14.5 cm after 6 years.

Bottom mud and bottom living animals make up the bulk of their food. However, these shrimps are not restricted to scavenging on the bottom as they often leave the bottom at night and return to it in the day. During these forays from the bottom they may feed on euphausids and

other pelagic crustaceans. Shrimps are preyed upon by redfish and a variety of other marine species.

Equipment

Boats — Boats used are mostly diesel-powered draggers 16-25 m in length, although some larger vessels are used. In Newfoundland, longliners of 15-25 gross tons have been converted for this purpose.

Gear — The modified otter trawl is the most commonly used type of gear. Mesh size in the wings and square is from 1 3/4 inches (4.5 cm)to 2 1/2 inches (6.35 cm) and in bellies and cod ends 1 1/2 inches (3.8 cm) to 1 3/4 inches. Headlines vary in length from 16-27 m. A variety of small traps 0.6 x 0.6 x 0.6 m or round basket-type traps covered with handmade netting with meshes up to 2 cm from knot to knot are also used.

Operations

Season — Shrimps are caught from December to March in the Bay of Fundy, but also during the spring, summer and autumn in the Gulf of St. Lawrence and Scotian Shelf.

Fishing base (ports) — In New Brunswick, Caraquet, Shippegan, Lemeque in the north; in Nova Scotia, Shelbourne.

Regulations — As the fishery is small, no management regulations have been established.

Catch composition

Relatively large catches of redfish may be taken with shrimp, also hake, witch and Greenland halibut but in lesser numbers.

Annual production

While commercial trawling for shrimp was introduced in 1911 in Nova Scotia, in 1946 in New Brunswick and 1952 in Quebec, there have been rapid fluctuations in shrimp production. Consequently, over the past 30 years most of the shrimp fishing has been carried out by individual fishermen for home consumption or markets in specific localities. Commercial shrimp fishing was reintroduced on a small scale during the winter of 1966-67 in the Bay of Fundy as an outgrowth of the fishery in the Gulf of Maine. It was found that spawning migrations permitted inshore draggers to catch large numbers in shallow waters at that time of year.

Product

Shrimps are cooked fairly soon after capture. If not cooked on board the dragger, they are washed, boxed and iced on board for cooking after landing. The meat is removed from the shell either by hand or by use of mechanical peelers and the meats frozen individually or canned for shipment. In 1973, 224 m.t. were exported to the United Kingdom, 130 m.t. to Sweden and 459 m.t. to other countries.

Sea scallop *(Placopecten magellanicus)*

Two species of scallop are found in deep water off the east coast of Canada; of these the sea scallop is by far the more abundant. The Iceland scallop (*Chlamys islandicus*) is smaller and more northerly in distribution.

Sea scallops are found in the northwest Atlantic from the north shore of the Gulf of St. Lawrence to Cape Hatteras. In the northern part of their range they may occur just below the tide marks, while in the southern part they are found in water deeper than 55 m. Mostly sedentary, they prefer a bottom of firm gravel, shells or rocks. However, this unusual shellfish can swim and shows very active escape reactions in the presence of starfish or fishing gear. Where conditions are favourable, scallops frequently occur in dense local populations or beds that may be extensive enough to support a commercial fishery. Over the last few decades, the major Canadian fisheries have been offshore on Georges Bank and inshore in the Bay of Fundy off Digby, N.S., in Northumberland Strait and the southern Gulf of St. Lawrence (Fig. 27). Significant catches have also been obtained in the past around the Magdalen Islands and Port au Port Bay, Newfoundland. In recent years overexploitation has reduced landings from many of these inshore grounds.

Spawning time varies from late August and early September in the Bay of Fundy to late September or early October on Georges Bank. As in all marine bivalves, the eggs develop into free-swimming larvae that may be carried for long distances by the currents. After a period of about 3 weeks, when they have reached the size of a pinhead, they develop a "foot" from which a byssus can be produced, which, upon settlement to the bottom, may attach the animal to the substratum. By the onset of their first winter, scallops are about 0.5 cm in diameter. On Georges Bank 4-year-old scallops average about 9 cm and may reach 18-20 cm during a maximum life span of 16-17 years. Annual growth is delineated by growth rings on the shell formed when the water is coldest between February and April.

Scallops feed on minute plants and animals strained from the water by an elaborate filtration mechanism involving the gills. Scallop larvae, during their free-swimming stage, are preyed upon by larger animals and are susceptible to unfavourable water conditions. After settling on the bottom, fish such as cod, plaice, and wolffish feed freely on them. Starfish and marine snails also prey upon adult scallops, although they have a well developed swimming ability which helps them to escape predators. The boring sponge often attacks old scallops and where the scallop is weakened by a continuous effort to repair shell damage, the meat becomes dark and stringy and of such poor quality that it is no longer marketable.

Equipment

Boats — Scallop draggers are sturdily built vessels of steel or wood and range in tonnage from class 1 (0-24.9 tons) to class 4 (150-499.9 tons). They are equipped with diesel engines up to 800 hp. The larger offshore draggers range up to 30 m in length and 7.3 m in width.

Gear — The offshore scallop drag (dredge) consists of a heavy rectangular frame up to 4.6 m wide with a collecting bag attached. Part of the top is made of rope webbing, the remainder of welded steel rings joined together by split links. The rings are made of 0.8 cm steel wire and have an inside diameter of 7.6 cm. Such drags weighing up to 680 kg are hauled in pairs, one on either side of the vessel. Eighteen-metre Digby vessels tow a gang of up to seven inshore scallop drags, each 0.75 m wide, attached to a long metal bar. These consist of wire mesh baskets of lighter rings than the offshore dredge, and can be used on the rougher inshore grounds.

Operations

Fishing base (ports) — Offshore scallop boats sail from several Nova Scotia ports, the more important being Lunenburg, Riverport, Liverpool, Yarmouth and Saulnierville. Inshore vessels sail from Port au Port, Newfoundland, ports in the Magdalen Islands, Prince Edward Island, and the Bay of Fundy, the most important of which is Digby.

Season — Scallop dragging is carried out offshore on a year-round basis, in the Gulf of St. Lawrence as ice permits and in the Bay of Fundy on a yearround basis, except on the Digby shore where scalloping is restricted to the area outside the 7-mile limit from April 30 to October 30.

Regulations

Quotas — None established.

Size — Vessel size must not exceed 65 ft (20 m) in the Bay of Fundy and Gulf of St. Lawrence. Gear size: tow bar cannot exceed 18 ft (5.5 m) in the Bay of Fundy. Meat count: must not exceed 45/lb from the offshore area.

Annual production

Until 1945 the Canadian fishery was an inshore operation centered off Digby in the Bay of Fundy. Landings fluctuated from 225-680 m.t. of shucked meats annually. After the second World War an offshore fishery developed with dramatic increases in landings in the early 1960's. In recent years, between 50% and 90% of Canadian scallop landings have come from Georges Bank, the single largest scallop resource in the world. Since 1965, Gulf landings have increased dramatically, reaching a peak of over 1,125 m.t. in 1970, then declined, as have landings from the inshore fishery. The factor for converting meat weights to round weight is 8.3.

Product

Scallops are shelled or "shucked" as soon as they are caught and all the soft body parts except the adductor muscle discarded with the shell. Meats are iced to prevent spoilage and marketed fresh, frozen, or breaded and partially fried. Much of the scallop other than the muscle is edible. Although muscle meats are never toxic, the mantle and the liver of scallops in the Bay of Fundy contain paralytic shellfish poison and are highly toxic the year-round. There is little or no toxin in any part of scallops from Georges Bank or southern Gulf of St. Lawrence. Therefore much of the animal from these areas which is now discarded at sea could be marketed, as it is in Europe, except from those close inshore banks where coliform counts prohibit the sale of whole shellfish. In 1973, 5,276 m.t. of shucked meats were sold fresh and frozen.

Channels of disposal

Most of the scallops landed in Canada are sold in the United States.

<u>American oyster</u> *(Crassostrea virginica)*

The American oyster is the commercial oyster of the Atlantic and Gulf of Mexico coasts of the United States and the Maritime Provinces of Canada.

The oyster grounds of the Maritimes are separated geographically from those of the United States because of the unfavourable water temperatures of the Bay of Fundy. Those on the east coast of Canada extend from Maisonette, Caraquet, Shippegan and Miscou in New Brunswick south along the Gulf of St. Lawrence and Northumberland Strait to Cape Breton Island. In view of the relatively low water temperatures, these areas are located in generally marginal territory at the northern limit of the range of the American oyster. Oysters feed only when water temperature has reached about 4.5°C and spawn in waters 20°C and above. Temperature depends in part on the depth of water; it tends to be higher in the upper reaches of estuaries and in the shallower parts of bays. In these areas oysters will feed more actively and for a longer period of the year, thereby achieving more rapid growth.

The type of bottom or substratum is an important factor in determining both rate of growth and quality. A soft mud bottom may cause distortion during growth and down grading or rejection at time of harvest, while overcrowding on a firm substratum may cause a pronounced reduction in growth or even death.

The rate of growth varies greatly since it is influenced by water temperature and currents, food supply, exposure to light, and intertidal exposure. In the Maritimes growth does not begin until May and stops again in October. Oysters therefore take from 4-7 years to reach a marketable size of 3 inches (7.6 cm) in length.

Oysters are filter feeders living on almost all types of minute plants and animals found suspended in the water.

Under natural conditions many oysters are killed by marine predators and others crowded out of existence by competitors such as mussels. The starfish is the worst enemy of the oyster in Canadian waters but oyster drills (boring snails) and boring sponges constitute serious problems to the industry.

The Canadian oyster fishery consists of two parts, the public fishery and the leasehold fishery. The practice of leasing inshore areas to encourage oyster culture has developed to a major degree since 1930 and today accounts for over 25% of the oyster production.

Practices are determined largely by site and kind of program selected. Oysters may be reared on a natural bottom, or bottom improved by covering with sand or shells, or by culturing, either in trays or on strings of shells suspended from rafts.

When spawning begins in late June or early July, microscopic free-swimming larvae are ejected, then settle on a firm surface as "spat" within a few days. Under natural conditions they settle on particles of sand or gravel, on shells or even on underwater portions of grasses or rushes. The oyster grower secures quantities of newly settled larvae by placing in their way substances to which they can attach themselves. If spat is to be removed at an early age for rearing in trays or on beds, materials such as roofing tile or cardboard egg-crate filler coated with cement may be used.

Natural beds that grow high quality oysters are usually deep, cool-water grounds in open bays or in lower parts of estuaries. Experience has shown, however, that loss from natural enemies and from smothering in silt is high in such locations if spat are transferred directly to these grounds.

In rearing spat it is best to force growth by planting them in mid-autumn or early spring in shallow waters towards the heads of inlets where the water is warm and where they can be protected from starfish. The young oysters are thinned out and replanted in cool-water grounds when as "fry" they reach a length of about 2.5 cm. Beds are kept thinned as the oysters develop so they do not become too crowded for normal symmetrical growth.

Equipment

Boats — Oysters are typically harvested by individual fishermen in dories; however, where oysters are harvested mechanically, small motor vessels are used.

Gear — Oysters may be picked by hand in very shallow water or raked. In deeper water, oysters are removed with tongs, a pair of rakes with handles fastened together in scissor fashion about one third of the way up from their heads. The teeth of the rakes point inwards. Handles may vary from 8-24 ft (2.5-7.3 m) as required by the depth of the beds to be fished. The oyster dredge or drag is basically a rake backed by a bag and towed along the bottom by a rope from a small motor boat. Heavier dredges are used in boats with power hoisting devices. The escalator harvester is a mechanical harvester effective in water down to about 3 m deep. It depends on jets of water to lift oysters off the bottom and onto an endless belt which brings them to the surface already washed.

Operations

Season — Oysters are customarily harvested in autumn and stored for winter use when inlets are ice-bound and fishing virtually impossible.

Canadian oysters, unlike the European, do not incubate their young and therefore can be eaten the year-round. They are, however, thin just after spawning and remain so during the warmest months.

Fishing base

Oysters are harvested and packed independently by the many fishermen scattered over the production area.

Regulations

Regulations are established by province and subject to change but generally include information such as:

1) area where public fishing is prohibited due to leasing or to pollution,
2) times when fishing is prohibited (usually on Sundays and from sunset to sunrise of all other days),
3) gear restrictions (no devices other than tongs or rakes operated by hand may be used in a public fishing bed in Prince Edward Island),
4) size restrictions (oysters less than 3 inches long must be returned to the bed),
5) stocking permits (leased beds may be stocked from another leased area between specified dates in early summer and from public areas in Prince Edward Island by permit from the Regional Director).

Annual production

Production was depressed by overfishing prior to the end of the century, and later by waves of disease in 1915 and 1955. The introduction of oyster farming in Prince Edward Island prior to Confederation and its development since then has had a marked effect on maintaining a viable industry.

Product

Oysters are cleaned, graded and packed in the shell in half-barrel boxes which hold 1 1/4 imperial bushels (45.45 litres), in half bushel (18.18 litres) and peck (1/4 bushel or 9.09 litres) boxes. Oysters are kept in refrigerated cold storage, mostly in Montreal, until distributed. Under good conditions and a constant temperature of about 1$^{o}$C, oysters may be stored in air for 4 months or longer with no serious deterioration. Drying can be kept to a minimum by storage in a damp atmosphere. Oysters will withstand freezing under certain conditions but repeated freezing and thawing is likely to kill them. Because of the premium price paid for oysters in the shell, they are now virtually all sold in this form.

Soft-shell clam *(Mya arenaria)*

Clam fishing has played a more significant role in local economics than the landing figures indicate, since a significant and probably unrecorded proportion of landings are dug for private consumption.

The soft-shell clam occurs from Labrador to South Carolina and is common locally in inlets in all the Atlantic provinces though to a lesser degree in Newfoundland. It lives in relatively undisturbed sandy or muddy sediments of tidal beaches usually distributed around mid-tide level. In lagoons in Prince Edward Island and Nova Scotia, populations also occur just below low-water mark.

The soft-shell clam spawns in the second or third year of life when water temperatures reach $10^{\circ}$-$12^{\circ}$C. Although juvenile clams attach themselves temporarily to sediments by byssal threads, they are later distributed over the beach by water movements, then on reaching a shell length of about 6.25 cm, they establish a permanent burrow. Growth in the Gulf of St. Lawrence is more rapid than on the outer coast where the growing season lasts only from May to October and growth averages from 0.65-1.25 cm per year. Thus, at least 3 years and more often four are required for seed clams to pass the marketable length of 2 1/4 inches (5.7 cm). Maximum shell size is about 10 cm.

Once established, the clam remains at the same depth throughout the year other than for the gradual deepening of the burrow that occurs with age. Burrows usually range from 2-4 inches (5-10 cm) deep, depending on age, soil texture, and population density. They tend to be shallower in clays than in soft sediments and in highly populated areas. Clams can withstand freezing up to 7 weeks if exposed to low temperatures.

In the Bay of Fundy and St. Lawrence River estuary, clams may accumulate a toxic substance during the summer months from the ingestion of a microscopic dinoflagellate, *Gonyaulax tamarensis*, on which they feed.

In areas where paralytic shellfish poisoning (PSP) occurs, clam beds are sampled on a regular basis during the summer months by the Protection and Fish Inspection officers of the Fisheries and Marine Service; extracts are prepared at federal fish inspection laboratories at Black's Harbour, N.B., and Halifax, N.S., and sent by air to the National Health and Welfare Environmental Health Centre in Ottawa for bioassay. Following the analyses, affected areas are posted, commercial packers and medical health officers advised immediately, and the public is advised by means of posters, press releases, radio and television publicity.

In the Bay of Fundy clam toxicity generally follows a typical pattern with one major peak in July, August or September and a sharp drop thereafter. In the St. Lawrence region the patterns of change in toxicity are not fixed and are therefore more difficult to cope with.

In recent years large clam beds have been permanently closed due to their proximity to areas of human waste disposal and the resulting high levels of *Escherichia coli* counts.

Aside from man, the major predators of the clam are currently the herring gull, *Larus argentatus*, winter flounder *Pseudopleuronectes americanus*, and two species of clam drill, *Polinices heros* and *P. triseriata*.

Equipment

Conventionally clams are harvested with a clam hack which causes high breakage rates of both harvested and unharvested clams. An escalator harvester has been developed in the U.S. for harvesting subtidal populations from a shallow draft boat. It combines a 95% efficiency with low breakage rates. A less expensive, hydraulic harvester was developed at St. Andrews in the 1960's. The harvester applies water under pressure from a pump in a small boat to the clam bed, releasing the clams from the semi-liquified soil where they can be raked from the surface. The use of these efficient devices is limited by licensing to prevent overexploitation of stocks.

Season

With the exception of polluted areas and those with a high level of PSP, clams can be harvested the year-round in areas free from ice. Clams become flabby, however, after spawning during the summer months.

Fishing areas

The most important clam beds are on the Bay of Fundy in the Digby and Passamaquoddy Bay areas. Secondary areas are located along Chaleur Bay and the northeast coast of New Brunswick (Fig. 28).

Regulations

Legal size in New Brunswick is 1.5 inches (3.8 cm) measured in a straight line and less in areas designated as overpopulated by the Minister; in Prince Edward Island, 2 inches (5.1 cm); in Nova Scotia 2 1/4 inches (5.7 cm). The fishery is subject to closed areas and closed seasons as determined by local conditions.

Annual production

At one time the soft-shell clam was our most valuable mollusc. The 1950 harvest was 10,000 m.t. but by 1957 the catch had dropped to 1,800 m.t. Since 1950 a number of factors have

affected production. These include mortality from inefficient harvesting methods, the infestation of the Bay of Fundy by a major predator, the green crab *(Carcinides maenas)* and unidentified diseases causing mass mortality in Prince Edward Island and the south and east coast of Nova Scotia. Currently the major reason for continued low levels of recorded landings is undoubtedly the heavy fishing pressure on the open areas. Current estimates indicate that about one third of the Maritime stocks occurs within areas closed because of sewage pollution.

Product

Of the 3,909 m.t. of clams of all species reported in the 1973 landings, 684 m.t. were sold in the shell, 596 m.t. shucked and 201 cases of 30 lb (13.61 kg) processed and sold.

Channels of disposal

Clams are bought by wholesalers and processors. All of the 990 m.t. of clams exported fresh or frozen were shipped to the United States.

Irish moss *(Chondrus crispus*)*

Irish moss is a small clump-forming seaweed which grows an exposed sites on rocky bottom from near low-tide level to a depth of 8 m or more. Each clump of moss is made up of several greatly divided laminae which grow from a "holdfast" about 1 cm in diameter firmly attached to a rock substratum.

Irish moss occurs from New Jersey to Newfoundland and is present in small quantities almost everywhere on the Canadian coast. On the outer coast of Nova Scotia moss is present everywhere and is particularly abundant along the coast of Yarmouth County. In the Bay of Fundy it is nowhere found in commercial quantities but in the southern part of the Gulf of St. Lawrence irish moss is abundant over wide areas. It is present in good commercial quantities on all sides of Prince Edward Island and on the mainland from the Gut of Canso to Malagash and from Richibucto to Point Escuminac. Currently about one half of the harvest is from Prince Edward Island (Fig. 29).

The irish moss industry had its beginnings in Scituate, Massachusetts, in 1847. In Canada, it was collected for many years prior to World War II in Antigonish County, N.S. At that time the chief use was in making blancmanges. It was not until about the time of the second World War that a significant breakthrough permitted the use of the carrageenan extracted from irish moss as a replacement for Japanese agar.

Equipment

Storm-tossed moss may be gathered from the beach at low tide using a pitch fork or rake. It is also harvested at low tide from dories or skiffs up to 6 m long using hand rakes for combing moss off rocks. The rakes have handles up to 6 m long and teeth from 15-20 cm long.

Since the early 1960's, the hand rake has been mechanized by the introduction of rakes up to 3 m wide and weighing up to 100 kg. These are operated by winches and towed on steel cables by lobster boats 10-13 m long at speeds to 2 knots (1 m/sec). Examination of rake tracks in heavily raked areas has shown that up to 5% of lobsters in the path may be killed by each passage of the rake.

Operations

Season — The season for irish moss differs from district to district depending mainly on the lobster fishing season but in most

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*plus *Furcellaria fastigiata, Gigartina stellata.*

districts it runs from July 1 to October 31. In Canadian waters, both the quantity and quality are best in July and August. The large quantities torn loose and cast ashore by storms in the late summer and autumn facilitate harvesting by hand at that time.

Regulations

Bill C204 "An Act to amend the Fisheries Act" presented on April 10, 1970, states that the Minister has authority to issue licenses for the harvesting of marine plants and to prohibit harvesting at any given time it is deemed necessary.

Operation

The harvesting of irish moss is done primarily by lobster fishermen during the off season. Moss may be raked or picked by hand from the rock ledge on which it grows or may be collected on beaches after storms. In either case it must be fresh and as free as possible of stones and shells and other seaweed. Care must be taken to prevent damage to the holdfast from which future production develops. The greatest percentage of moss is now sold wet to processors who in some cases provide harvesting equipment.

Agents for processors receive moss at the wharf and provide for transportation to the drying plant, although in some cases harvesters sell directly to the drying plant. In the plant the moss is bleached by salt water while being dried either by mechanical dryers or by sunlight. The latter, traditional method is being rapidly supplanted by the mechanical process. Upon drying, the moss is baled and shipped to the extracting plant. On an average, 4-5 kg of wet moss provide 1 kg of dried moss.

As of 1971, extraction of carrageenan from the dried moss collected in Canada was done by two firms in Maine and two in Denmark.

Product

The uses of irish moss depend on the qualities of carrageenan, a complicated hydrocarbon which can be extracted in hot water solution from the cured moss. Its value depends upon its ability to remain suspended in liquid, thus allowing the latter to gel to thicken liquids and to make emulsions.

In ice cream it prevents the formation of large ice crystals and produces a smooth mixture of creamy consistency. Among its many uses, it is used as a suspending agent in chocolate milk, a thickening agent in milk puddings, an emulsifier for cod liver oil, a size for cloth, a component of water soluble paints and a clearing agent for beer.

Production

The irish moss harvest from the Canadian Atlantic Ocean has increased in value from about $30,000 in 1943 to almost $2,700,000 in 1969. Production in Prince Edward Island increased more than sevenfold from 1964 to 1969. Approximately one half of the world's supply, with a landed value in 1973 of nearly $2 million, comes from the Maritime Provinces.

Disposal

About 90 (mostly small) agents or buyers for processing plants are scattered across the region. In an area such as western Nova Scotia there may be numerous buyers but the greatest proportion are agents for a few firms. The two major firms account for over 70% of the total buyers. Minor processors may sell dried moss directly to industry (e.g. beer industry) without further processing. Most of the dried moss is sold to extractors in the United States and Denmark who extract the carrageenan for manufacturing and food processing uses.

## OTHER COMMERCIAL SPECIES

Each of the species considered above contributed more than 1,000 m.t. to the Canadian east coast landings in 1974. There are a number of other species which may play a significant local role, or which may provide opportunities for Canadian fisheries to replace foreign competition or to develop new products. Several of these are listed below.

1974 Landings for Convention Area in Metric Tons
(<1,000 m.t.)

| | Maritimes and Quebec | Newfoundland |
|---|---|---|
| Silver hake | 12 | – |
| Angler | 15 | 2 |
| Lumpfish | 4 | – |
| Tomcod | 270 | – |
| Eel | 568 | 9 |
| Shad | 148 | – |
| Striped bass | 10 | – |
| Sturgeon | 4 | 14 |
| Surf clam | 162 | – |
| Ocean quahog | 176 | – |
| Mussel | 23 | – |
| Periwinkle | 33 | – |
| Squid *(Illex)* | – | 17 |
| Sea urchin *(Strongylocentrotus)* | 46 | – |

In addition various species are landed but recorded in non-specific terms in the ICNAF statistics. If these are grouped under major classes, the following list can be identified:

Unspecified 1974 Landings
from Convention Area - Metric Tons

| | Maritimes and Quebec | Newfoundland |
|---|---|---|
| Groundfish | 4,636 | 858 |
| Small pelagics | 375 | - |
| Large pelagics | 16 | - |
| Trout | - | 145 |
| Invertebrates and seaweeds | 711 | - |
| Others | 27 | 182 |
| Total additional landings | 5,765 | 1,185 |

## GEAR+

The catch of various species by gear type has been documented above, using the abbreviations from the ICNAF statistical bulletin. These are as follows:

| | |
|---|---|
| *OT - otter trawl | *GN - gill net |
| OTSI - side otter tral | GNS - gill net set |
| OTNS - stern otter trawl | GNG - gill net drift |
| *MT - midwater trawl | *LL - longline |
| MTSI - midwater trawl side | LLS - longline set |
| MTSN - midwater trawl stern | LLD - longline drift |
| PTB - pair trawl bottom | HL - handline |
| PTM - pair trawl midwater | TL - troll line |
| ST - shrimp trawl | OL - otter line |
| DS - Danish seine | DV - dory vessel |
| SS - Scottish seine | *FIX - traps |
| PRS - pair seine | TRA - uncovered pound nets |
| BS - beach seine | POT - covered pot |
| PS - purse seine | WR - weir |
| | DRE - dredge |
| | HAR - harpoon |
| | MISC - miscellaneous |
| | NK - not known |

*non specific

+for more detail see Blair, C.H. and W.D. Ansel, 1968 (References)

The various types of gear can be broadly categorized in terms of nets, hook and line, impaling tools and traps or pots. Nets may work in one of two ways. Either the meshes are fairly wide and the fish are entangled in them, or finer mesh nets are employed to surround the fish.

The entangling nets may be as simple as the gill net, in which the mesh is broad enough to allow the head and gills of the fish to go through, but narrow enough to prevent the rest of the body from following. (unless it is a specimen below the size deemed permissible to catch without harming the survival of the stock; mesh size being a useful management tool). The fish is held by the gills when the net is recovered, and has to be hand-separated or mechanically shaken out of the meshes.

The nets may be fished by drifting, the net being set out on a downwind course, the boat then mooring to the leeward end and drifting, allowing the net to hang as a curtain just below the surface (Fig. 30A). The upper edge of the net is, of course, buoyed and the lower edge is weighted. The floats and weights can be adjusted so that with an overall positive buoyancy, the net floats at or near surface or, with a net negative buoyancy, it is "set" on the bottom (Fig. 30B).

The nets used to surround the fish may be divided into seines used for pelagic species, and the trawls, dredges and Danish seines for demersal species, the midwater trawl being used for pelagic phases of demersal fish or for pelagic species. The seine is laid out around a school of fish and then drawn to shore (beach seine) or to a fishing vessel. It is commonly laid out by using a smaller vessel, the tender, to anchor one end while the larger vessel steams around in a circle or vice versa. While the simple seine (called a ring net) is like a fine-meshed version of a gill net, with floats on the upper line and a leaded line on the bottom, the offshore version is more commonly a purse seine (Fig. 30C) named for the fact that the net can be pursed up by pulling in a "draw string" that runs through rings hung from bridles along the lower edge of the net. This, of course, prevents the fish from escaping out of the bottom of the net. Like so many fishing operations, the nets are often used at night when the pelagic fish cannot see the nets, and so the final recovery stages have to be assisted with floodlights which would drive the fish, such as herring, out of the bottom of the net if it were not closed. The fish may be taken aboard by brailing (using small nets to shift the catch a bit at a time) or by suction (when the scales are harvested separately from herring and the fish are not handled by the crew at all).

Seines vary in size from the Scottish ring sets that may be 200 x 30 m, to the big Canadian tuna seines reaching 1200 x 120 m.

Trawls consist of a bag-shaped net, the narrow bottom of the bag being called the codend; the wider piece ahead of this is termed the belly. The net extends further forward along the sides (wings) and at the

top (the back) than on the sea bed. The upper part of the front opening has floats on it and the lead line along the bottom may have rollers along it to prevent snagging on the sea bed. The sides are held open by a beam (beam trawl) or more commonly by a pair of heavy doors or "otter boards" (Fig. 30D) attached to the lines, termed warps, leading to the boat, or by the efforts of two boats in what is termed pair trawling, which is self explanatory. The bag may consist of twelve sections of webbing which vary in size, shape and mesh size, laced together by hand.

Side trawlers operate the warps through blocks hung on A-frame gallows fore and aft, after which they are both led astern behind the winch and the deckhouse. The more recent stern trawlers have the superstructure set well forward, the after portions being built each side of the long, broad fish deck which is continued to the square stern down an inclined slipway. This is bridged by a tall gantry capable of lifting the filled codend so the catch can be released onto the fish deck, which may be virtually enclosed, affording much more protection to the fisherman than the open decks of the side trawler. Pair trawl fish from two boats, one warp on board each one, thus avoiding the need for otter boards or beams.

The Danish seine is fished by letting off a tender to look after one end of the first warp or buoying or anchoring it, paying out the warp on one run, then the trawl-shaped net which lacks otter boards or beam (Fig. 30E). The vessel then returns to the buoy anchor or tender, paying out the second warp as it goes, until it can remove the first warp and draw in the net. The net is held open for a while by water resistance and friction of the ropes on the bottom. The method is called fly dragging when the buoy is used, as opposed to anchor seining, during which the free warp is anchored.

While these trawls harvest bottom-dwelling species and the gill nets and purse seines are used for surface or shallow water fishing, the trawl has been modified for midwater operation. The net can be held at the required depth by adjusting the ship's speed, the position of the net being determined from length and angle of warp, sonar transducers on the net, or telemetry from a pressure gauge on the net.

Longline fishing and rod fishing are, of course, more familiar techniques. The hooks, suitably baited, are strung along lines which are either anchored or which may be hung from a series of floats (Fig. 30F). They may be trolled, that is fished from rods while the boat is under way, usually trailing bait intended to draw the fish to the boat (chumming). Some tuna and skipjack are fished by hand-tended poles and lines - with unbaited hooks, the live bait being freed around the vessel. The dorymen carry many small boats (dories) that tend individual lines and return their catches to the mothership.

Shellfish and lobsters are captured in various dredges and traps. The scallop dredge is like a small metal version of the trawl, but smaller

clams are harvested with hydraulic or escalator harvesters. The shrimp trawl is again a specialized version of a trawl. Lobster and crab traps vary in size and shape, and a variety of materials from wood and steel to plastics are employed. The traps are baited, weighted, marked with identifying floats and set on the bottom.

Two forms of fish trap need to be mentioned, the herring weir and the Newfoundland cod trap. In the former, a line of stakes is driven into the bottom running from shore out to a point where a circular or bilobed enclosure stands in water even at the lowest tides. A fine-mesh net is affixed during the fishing season, running out along the leader to the circular trap and all around that, leaving one narrow entrance beside the point where the leader joins the trap proper. Fish swimming parallel to the shore will, of course, be diverted along the leader, through the opening, and into the trap. Once in, the fish will tend to circle within the trap, not making the abrupt turn needed to escape. Such traps are characteristic of places with strong tidal fluctuations. They may consist of fixed gill nets on which the fish hang high and dry at low tide.

The cod trap is similar, except that there are no stakes to maintain the shape of the trap (Fig. 30G). A box of net with floats on the headline and weights on the foot is fitted with a netting floor. The leader extends through the door of the trap by about 2 m, the door being attached to a bar which can be pulled up, drawing with it the netting door that closes the trap when the fish are to be harvested. The whole is supported by guy ropes attached to grapnels.

The range of gear used in the Atlantic provinces (1970) may be broadly characterized as follows:

| | Nfld. | N.S. | P.E.I. | N.B. | P.Q. | Total |
|---|---|---|---|---|---|---|
| No. of craft | 572 | 1,334 | 39 | 1,070 | 396 | 3,411 |
| Gear used: | | | | | | |
| Otter trawl | 70 | 199 | 18 | 119 | 179 | 585 |
| Line trawl | 143 | 501 | – | 9 | 41 | 694 |
| Seine | 28 | 88 | 5 | 79 | 18 | 218 |
| Gill net | 452 | 235 | 5 | 477 | 96 | 1,265 |
| Other | 120 | 1,095 | 24 | 922 | 198 | 2,359 |

Most of the smaller vessels operate in the Gulf of St. Lawrence and off the southern shore of Nova Scotia. The majority of deep sea vessels operate out of Newfoundland and Nova Scotia.

In the 1973 catch the purse seine landed the largest quantity of any specific gear (Fig. 31) but less than the side and stern otter trawl catches combined. Set gill nets accounted for just less than 100,000 m.t., leaving 25,000-60,000 m.t. for pots, dredges (lobster, shellfish), weirs and uncovered pound nets (pelagics), midwater trawls and set longlines, with 50,000 m.t. from unknown gear.

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# FIGURES

# ICNAF Boundary & Quota Map / 1975

### 1975 CANADIAN ALLOCATION

(Metric Tons)

| SPECIES Stock Area | Canadian Share |
|---|---|
| **COD** | |
| 1 | — |
| 2G H | — |
| 2J, 3K, L | 38,000 |
| 3M | 3,000 |
| 3N, 0 | 12,700 |
| 3PS | 15,900 |
| 4T, VN | 37,700 |
| (4T Jan. - Dec.) (4VN Jan. - Apr.) | |
| 4 VN | 7,800 |
| (May - Dec.) | |
| 4 VSW | 24,250 |
| 4X | 3,200 |
| 5Y | — |
| 5Z | 4,820 |
| **HADDOCK** | |
| 4VW | 0 |
| 4X | 12,500 |
| 5 | 1,200 |
| **REDFISH** | |
| 2, 3K | 3,500 |
| 3M | 1,000 |
| 3LN | 1,300 |
| 30 | 500 |
| 3P | 12,500 |
| 4VWX | 14,860 |
| 5 | — |
| **AMERICAN PLAICE** | |
| 2, 3K | 3,500 |
| 3M | 500 |
| 3LNO | 49,700 |
| 3PS | 8,800 |
| **YELLOWTAIL** | |
| 3LN0 | 30,500 |
| **WITCH** | |
| 2J3KL | 6,600 |
| 3N0 | 5,000 |
| 3PS | 2,500 |
| **YELLOWTAIL WITCH AMERICAN PLAICE** | |
| 4VWX | 20,000 |
| **GREENLAND TURBOT** | |
| 2, 3KL | 24,000 |
| **SILVER HAKE** | |
| 4VWX | 4,000 |
| 5Y | — |
| 5Ze | — |
| 5ZW6 | — |
| **POLLOCK** | |
| 4 VWX 5 | 33,500 |
| **HERRING** | |
| 4VWA | 26,500 |
| (January - June) | |
| 4VWA | 39,800 |
| (July 1975 - July 1976) | |
| 4X WB | 68,500 |
| 5Y | 4,200 |
| 5Z 6 | 2,000 |
| **MACKEREL** | |
| 3, 4 | 39,000 |
| 5, 6 | 7,500 |
| **SQUID** | |
| 3, 4 | 10,000 |
| 5, 6 | — |
| **CAPELIN** | |
| 2, 3K | 10,000 |
| 3LNOPS | 30,000 |
| **ALL FINFISH** | |
| 5, 6 | 26,000 |

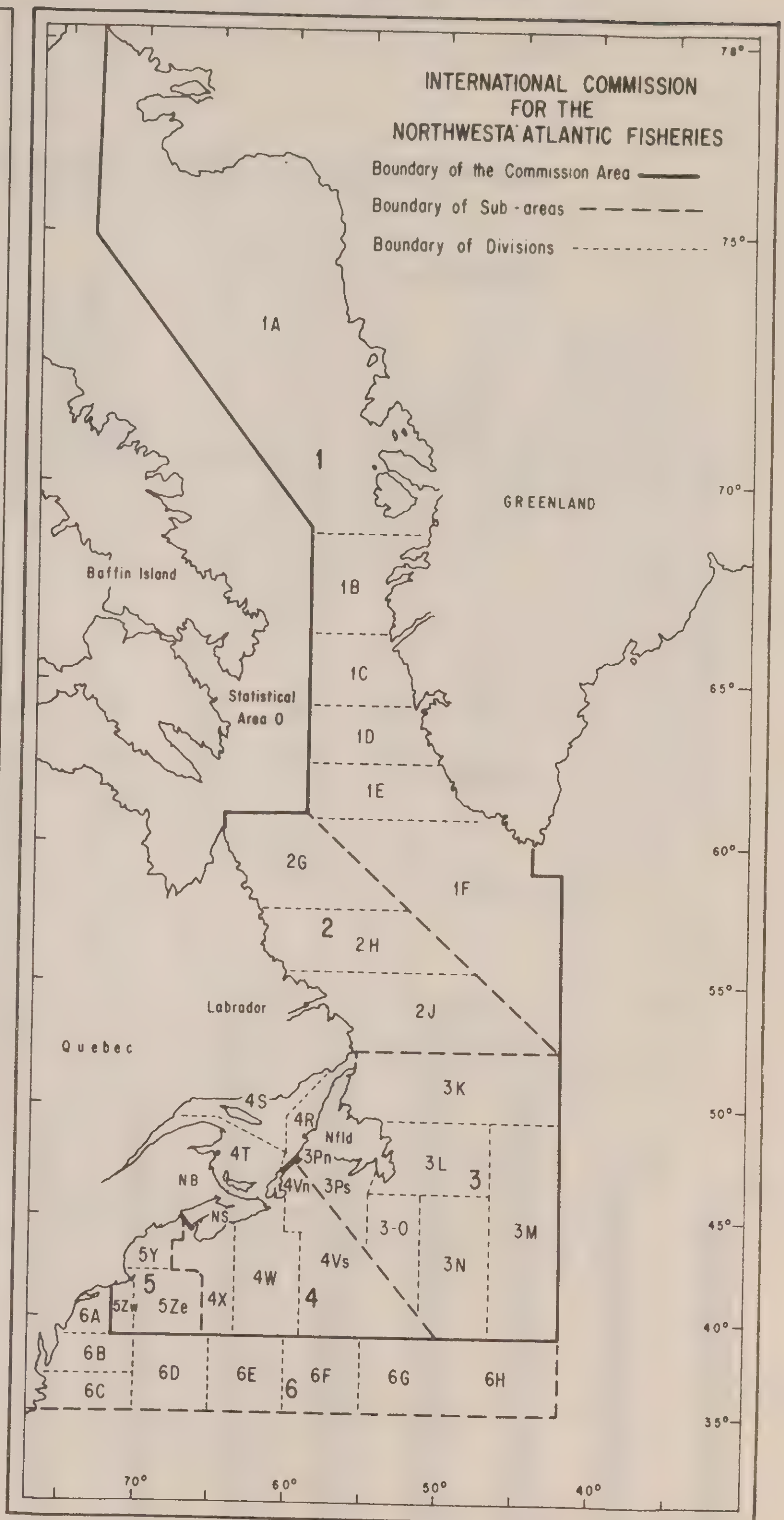



Figure 1.

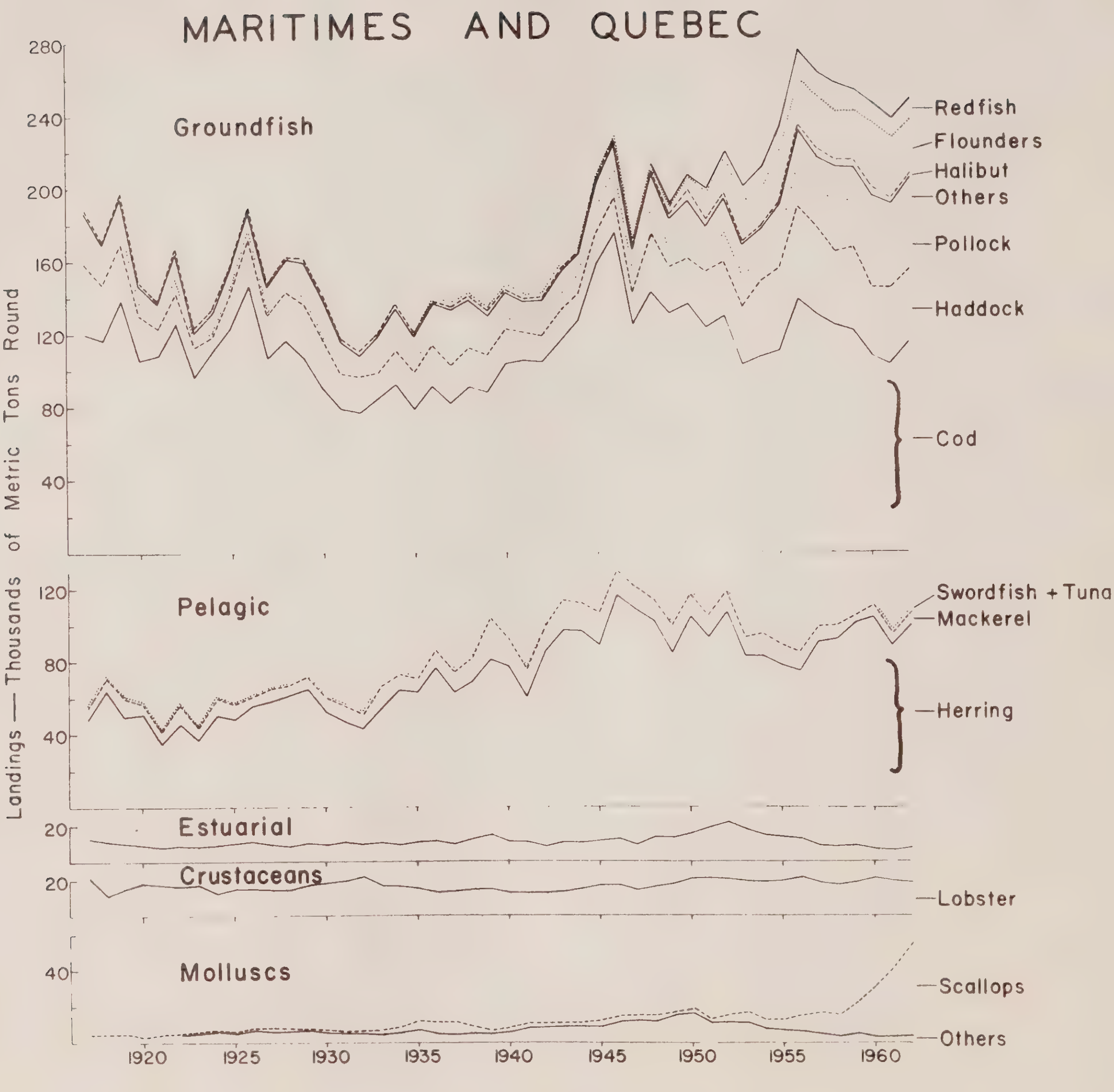
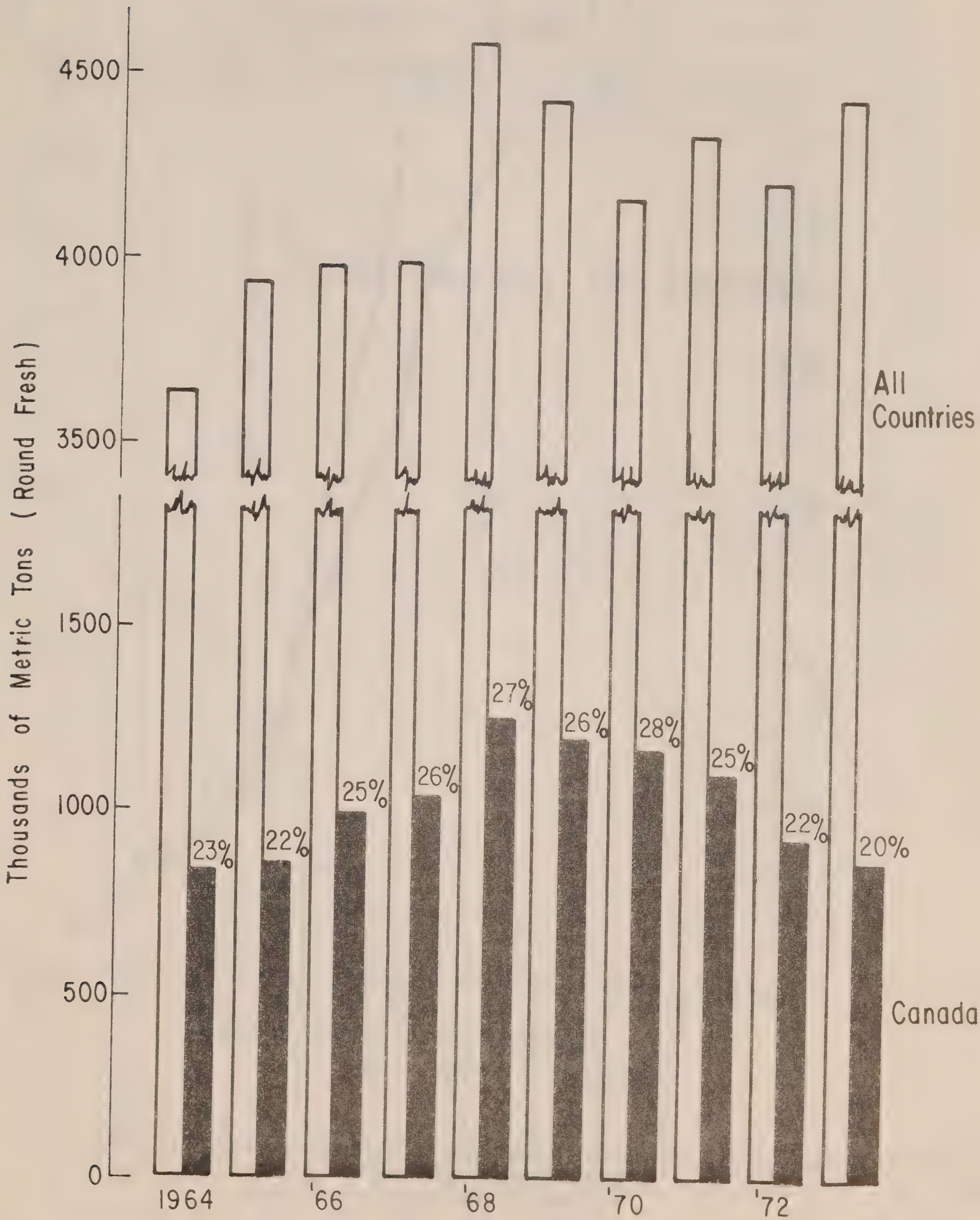



Fig. 2. History of Atlantic coast landings (after Martin, 1963).

Fig. 3. Nominal catches of all species in the Northwest Atlantic, including statistical areas 0 and 6 from 1968 (1973 ICNAF Stat. Bull.).



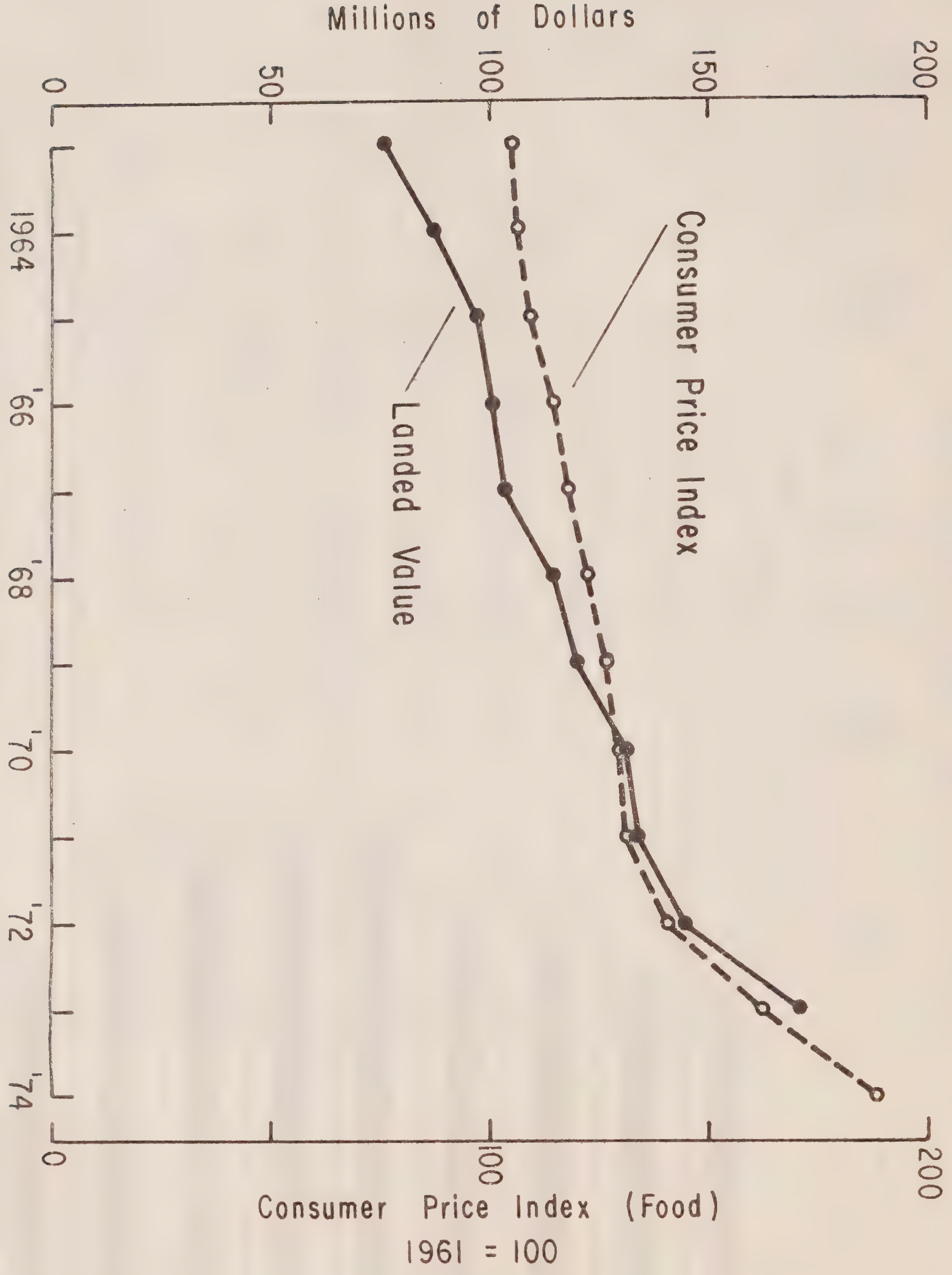



Fig. 4. Landed value of the Canadian fishery within the Northwest Atlantic (Fishery Statistics Canada).

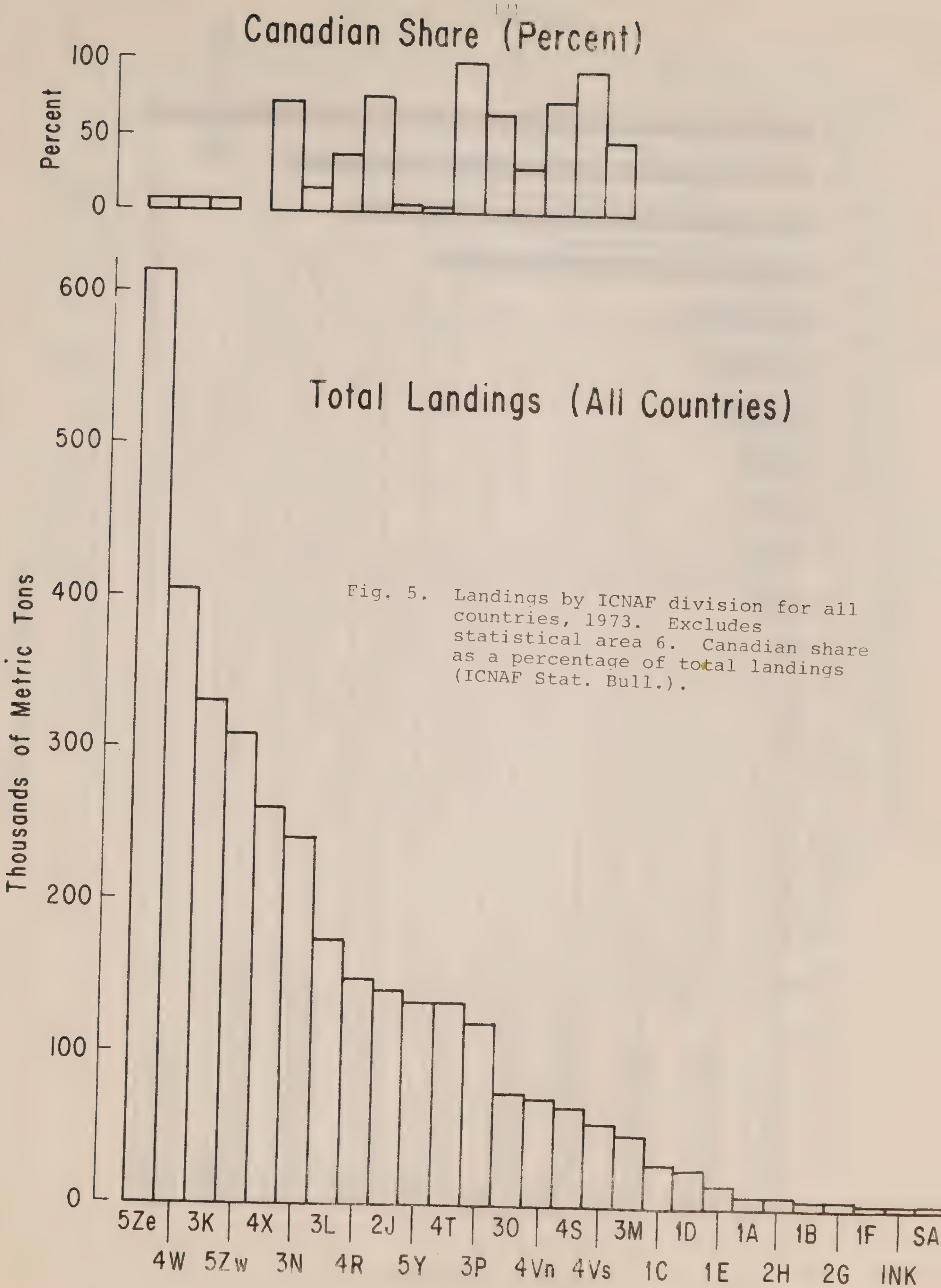



Fig. 5. Landings by ICNAF division for all countries, 1973. Excludes statistical area 6. Canadian share as a percentage of total landings (ICNAF Stat. Bull.).

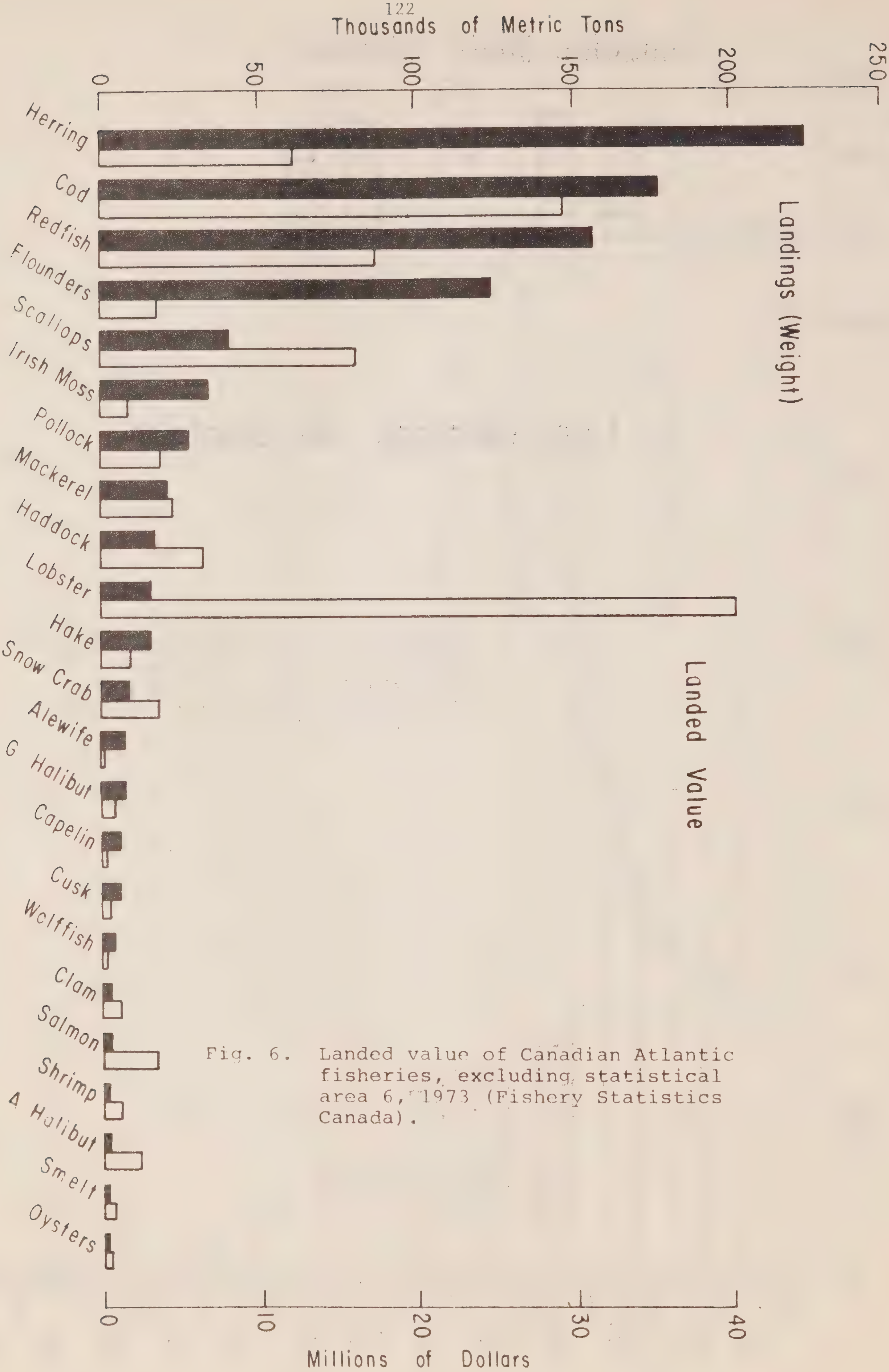



Fig. 6. Landed value of Canadian Atlantic fisheries, excluding statistical area 6, 1973 (Fishery Statistics Canada).

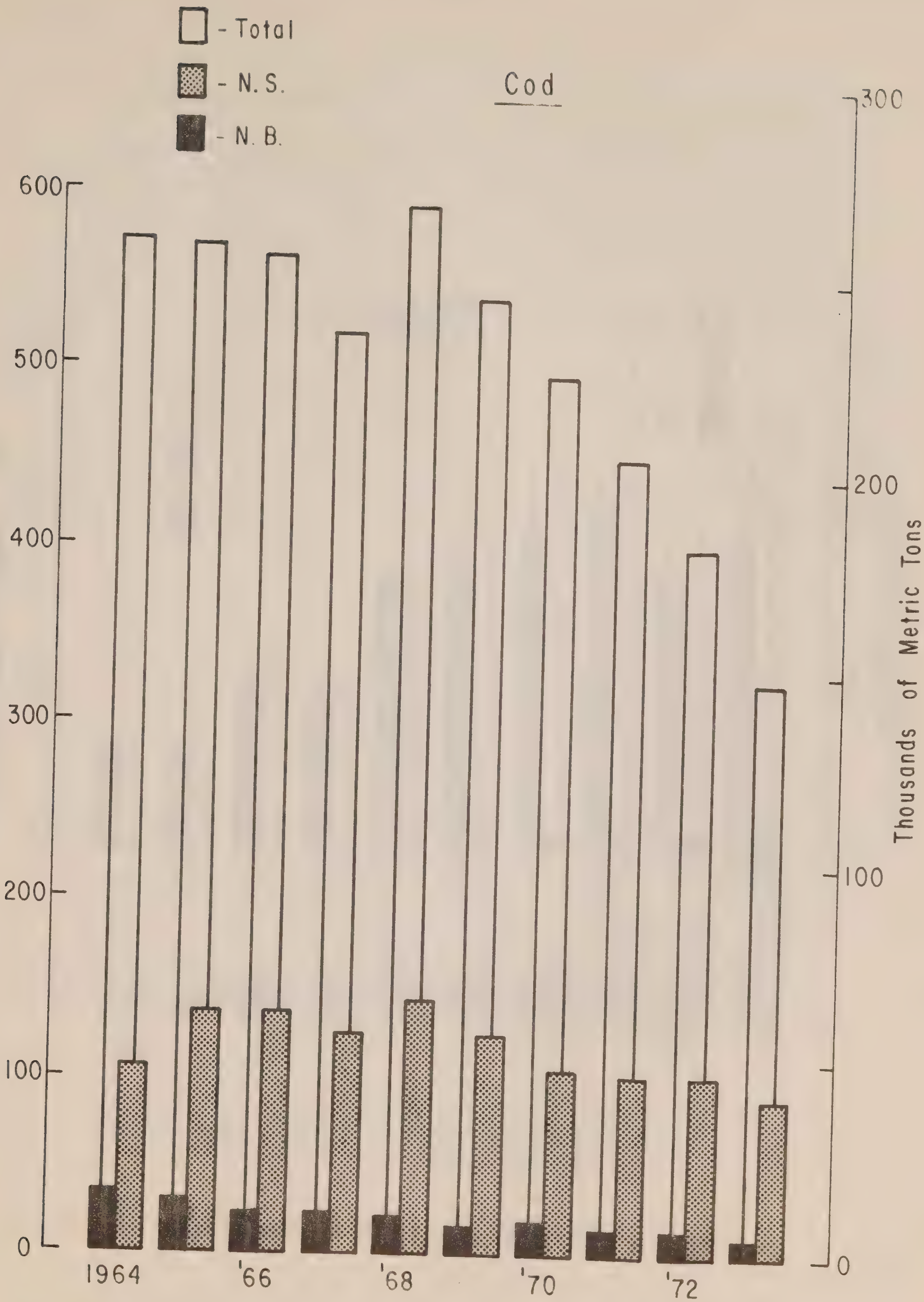



Fig. 7. Canadian Atlantic cod landings (Fishery Statistics Canada).

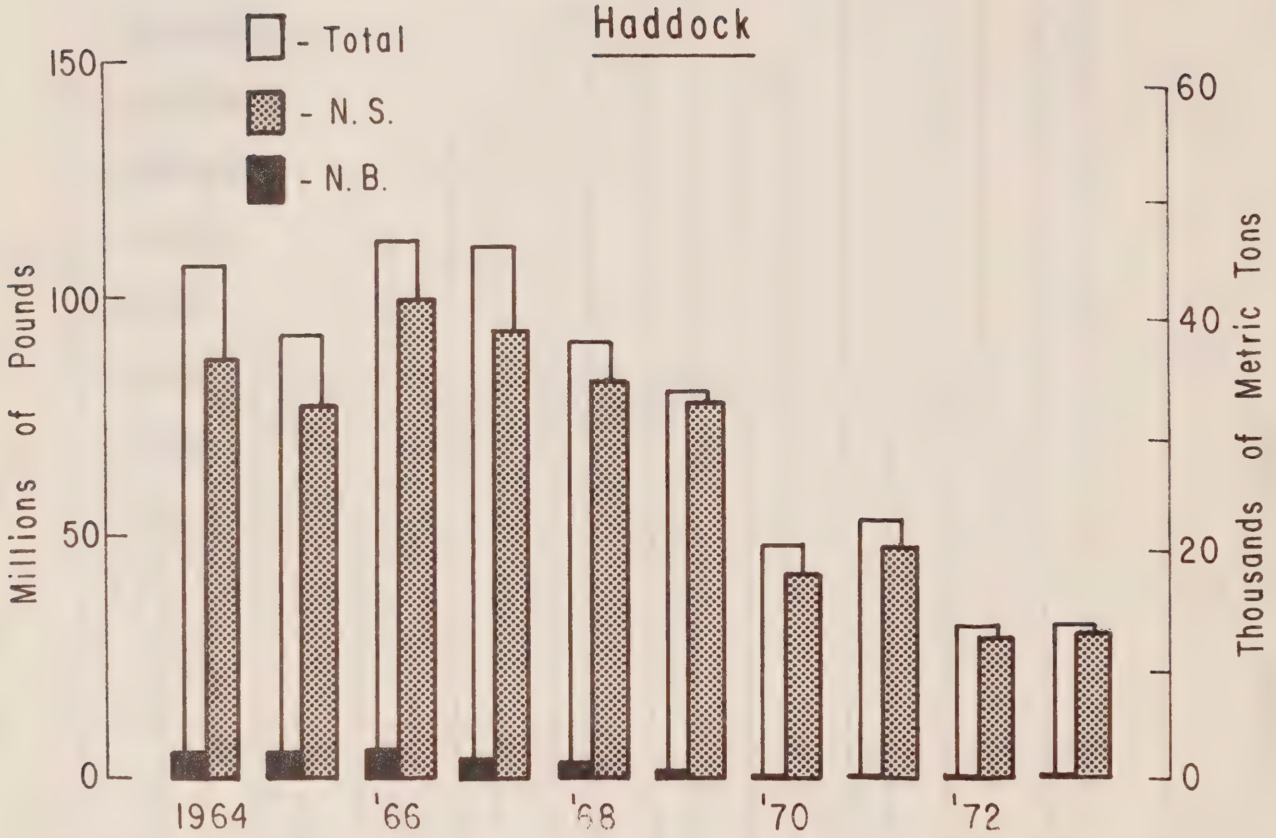



Fig. 8. Canadian Atlantic haddock landings (Fishery Statistics Canada).

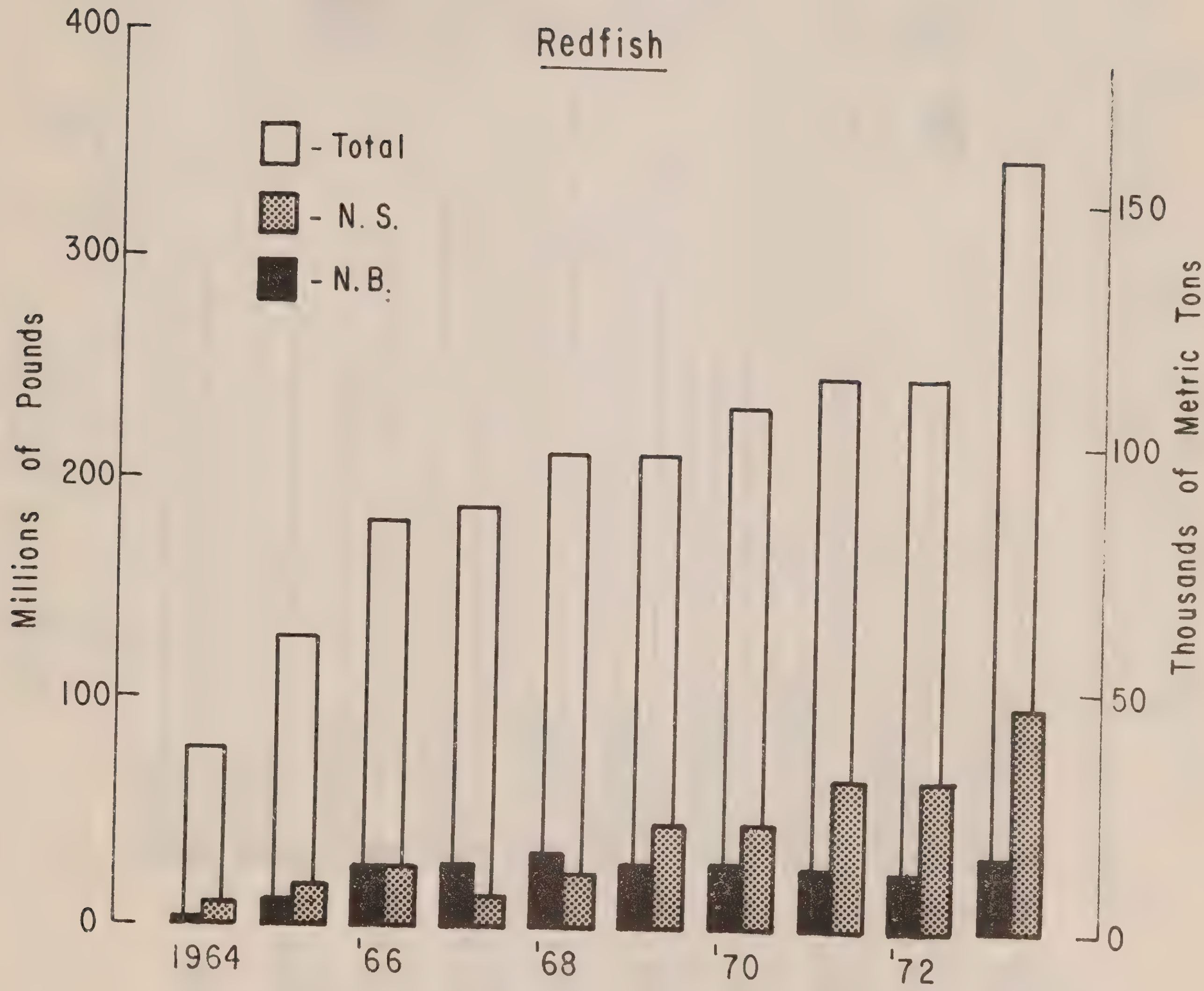



Fig. 9. Canadian Atlantic redfish landings (Fishery Statistics Canada).

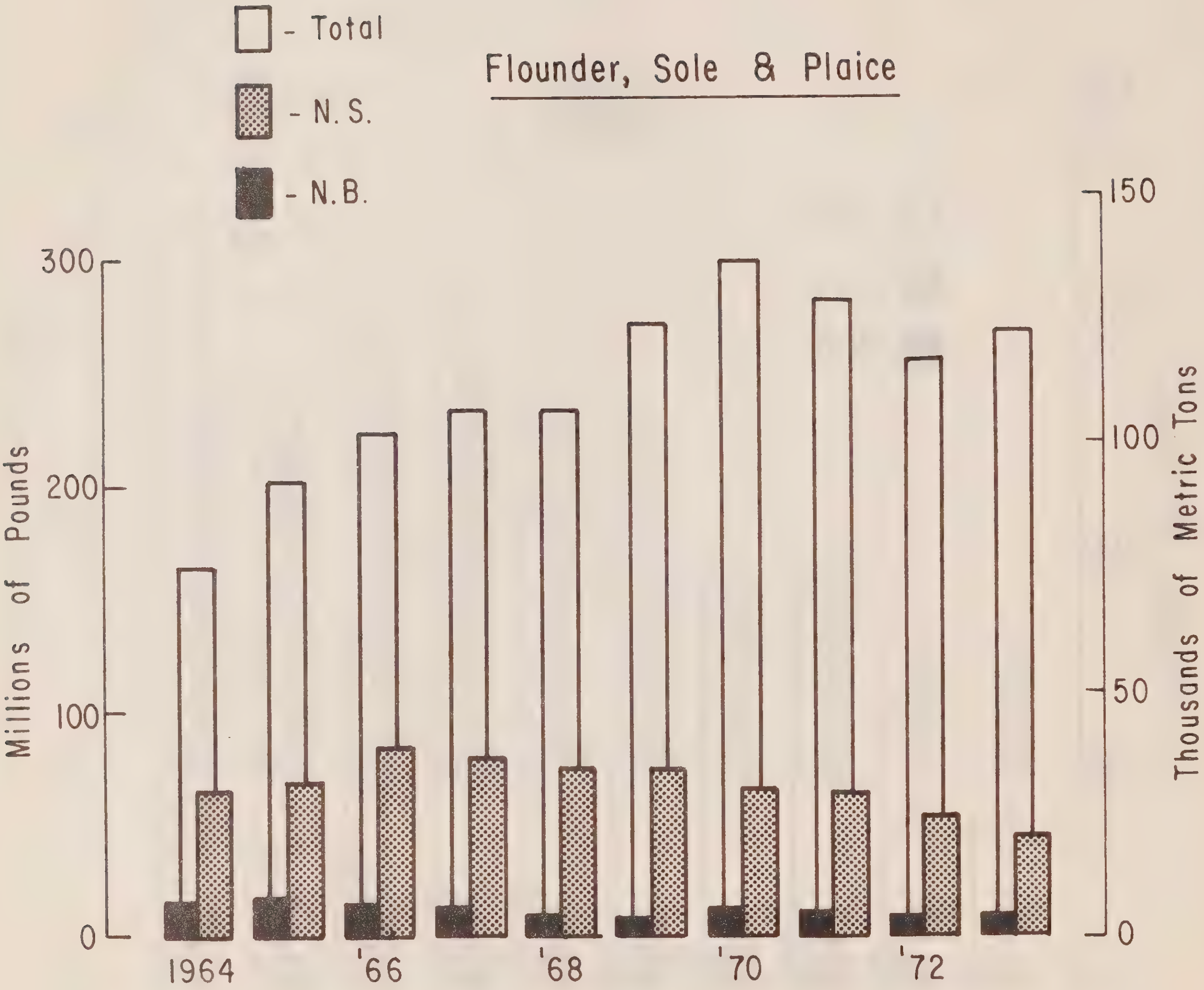



Fig. 10. Canadian Atlantic flounder, sole and plaice landings (Fishery Statistics Canada).

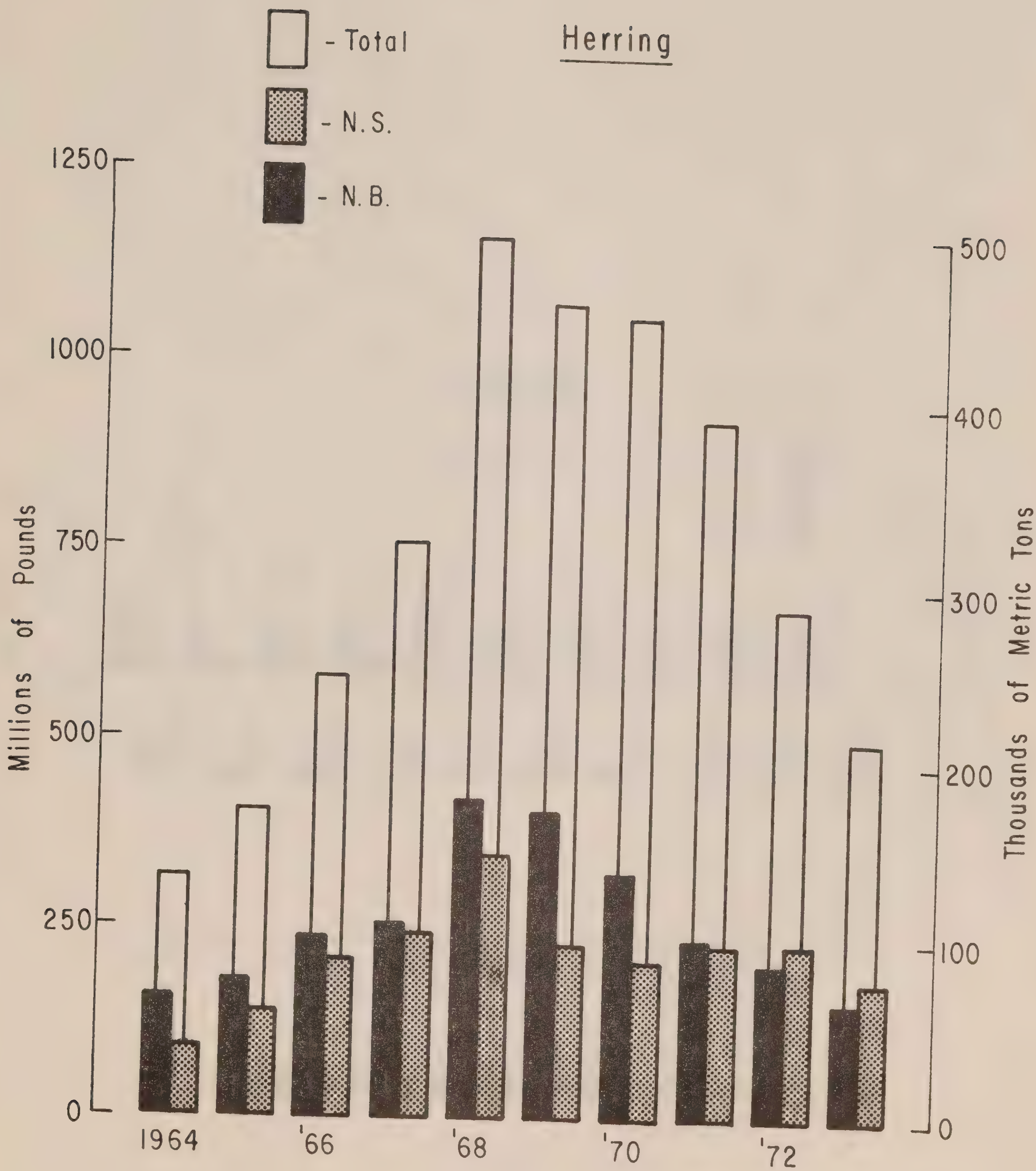



Fig. 11. Canadian Atlantic herring landings (Fishery Statistics Canada).


Fig. 12. Canadian Atlantic mackerel landings (Fishery Statistics Canada).

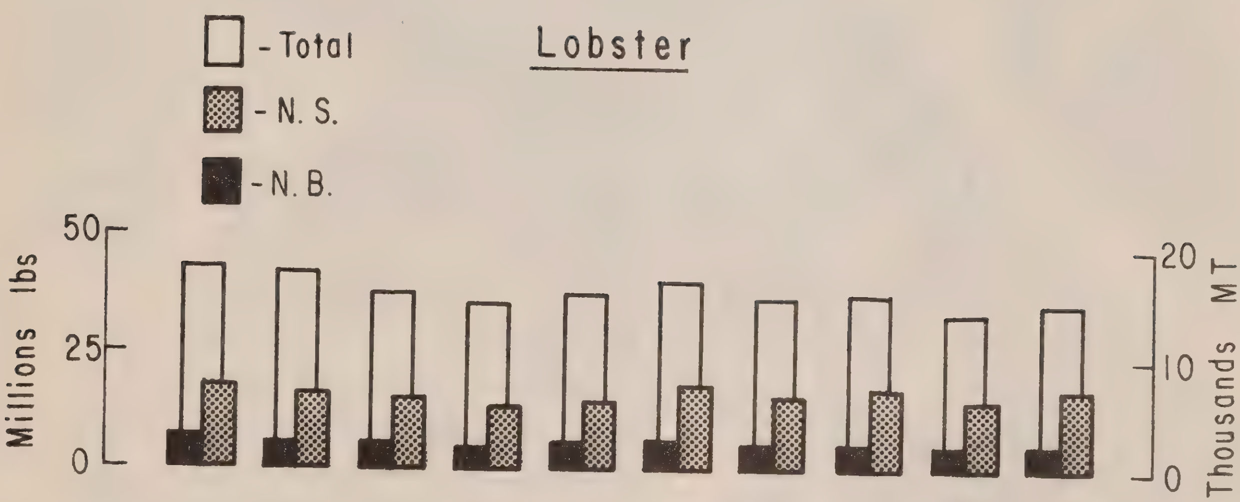
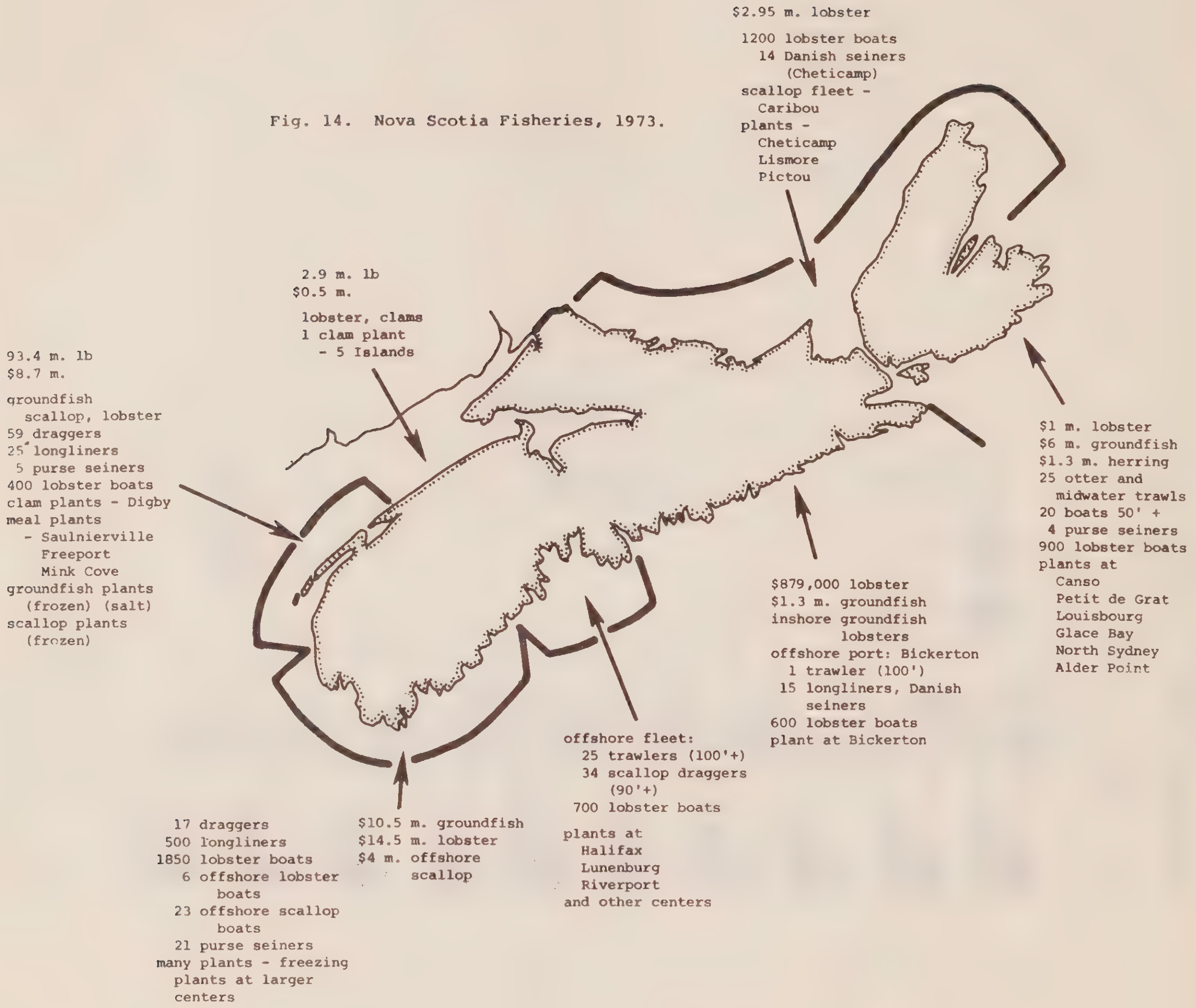



Fig. 13. Canadian Atlantic lobster landings (Fishery Statistics Canada).

Fig. 14. Nova Scotia Fisheries, 1973.



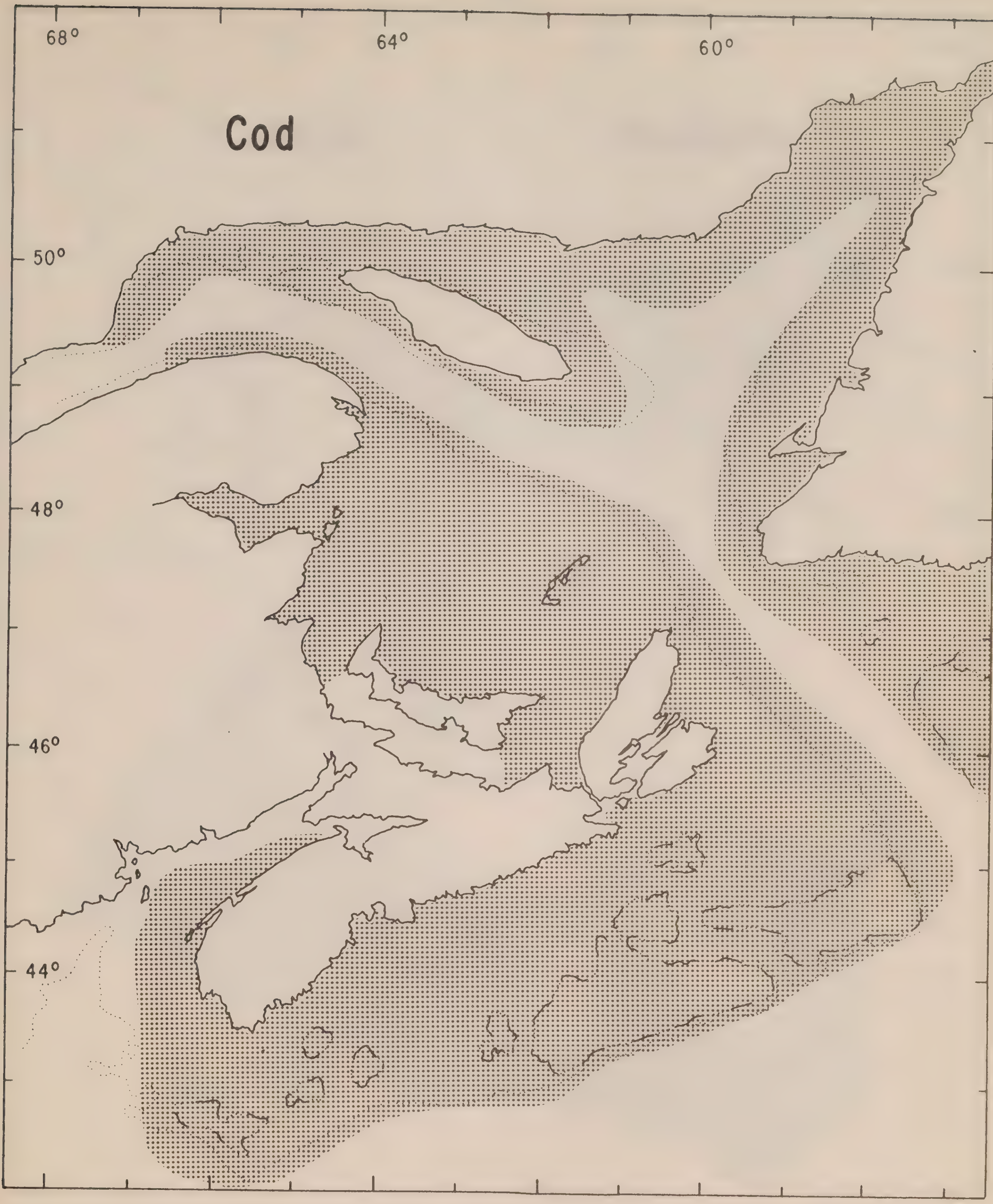



Fig. 15. Cod distribution in ICNAF Subarea 4. Stippled zones show areas of significant distribution (from Kohler 1968).

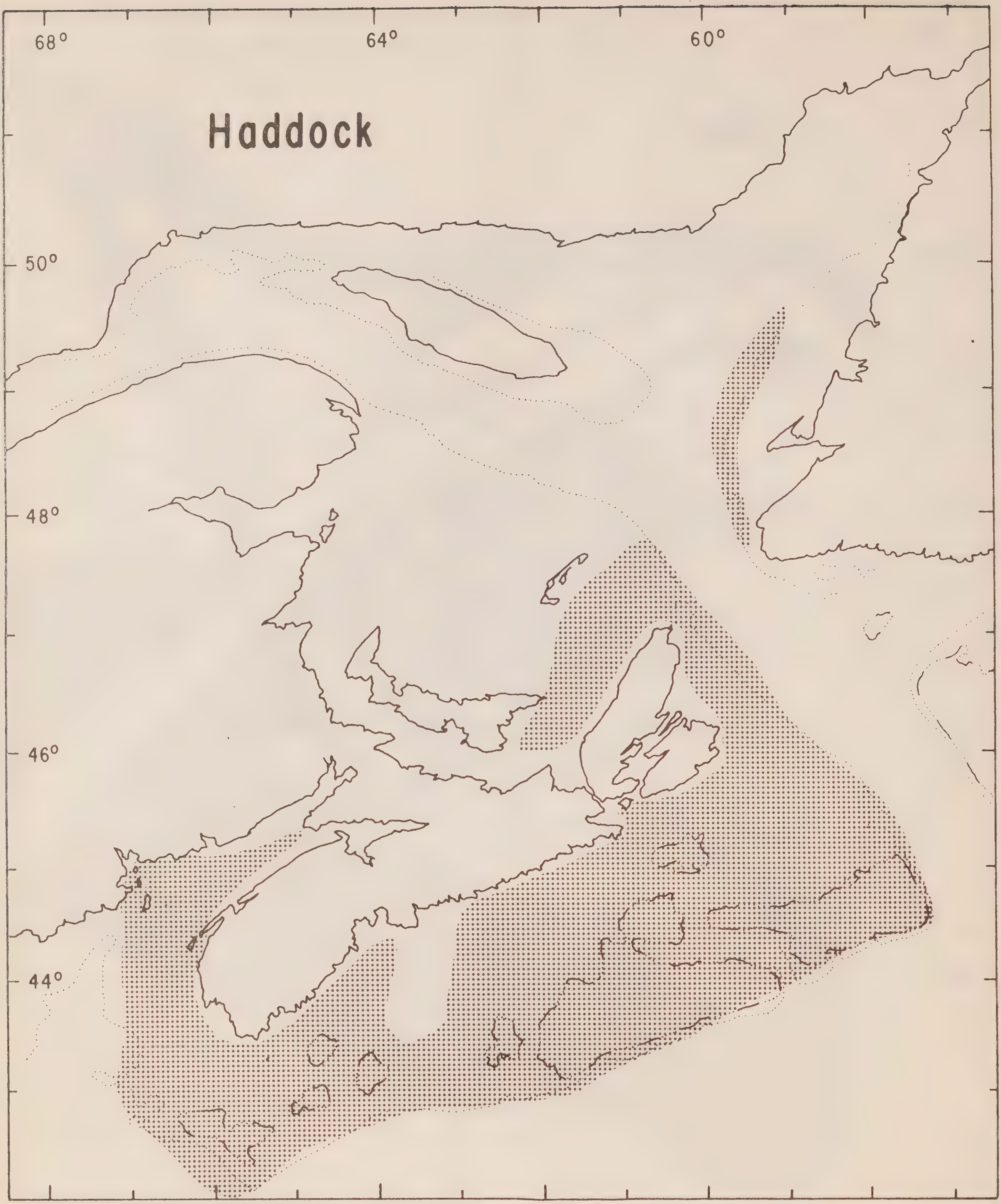



Fig. 16. Haddock distribution in ICNAF Subarea 4 (from Kohler 1968).

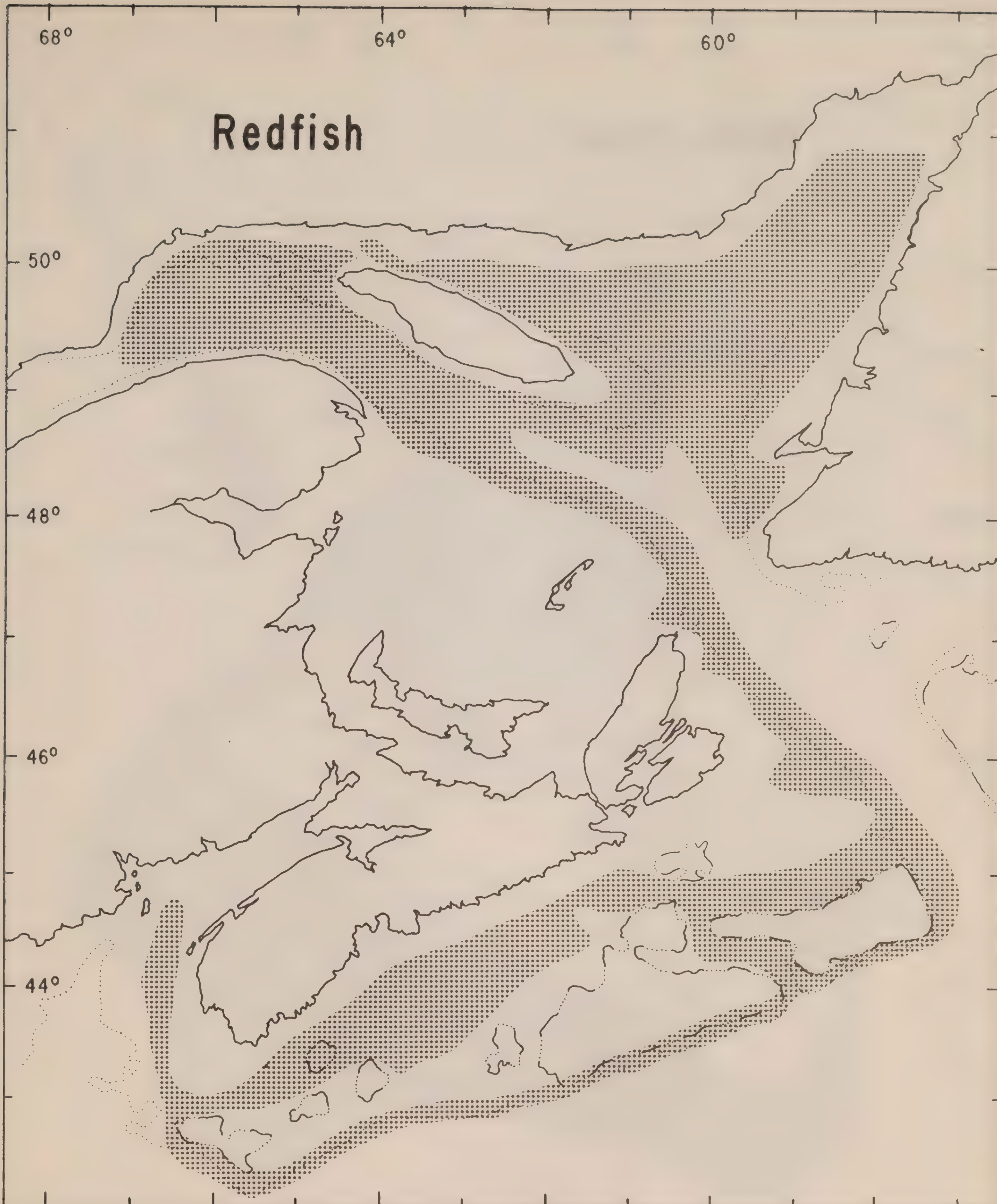



Fig. 17. Redfish distribution in ICNAF Subarea 4 (from Kohler 1968).

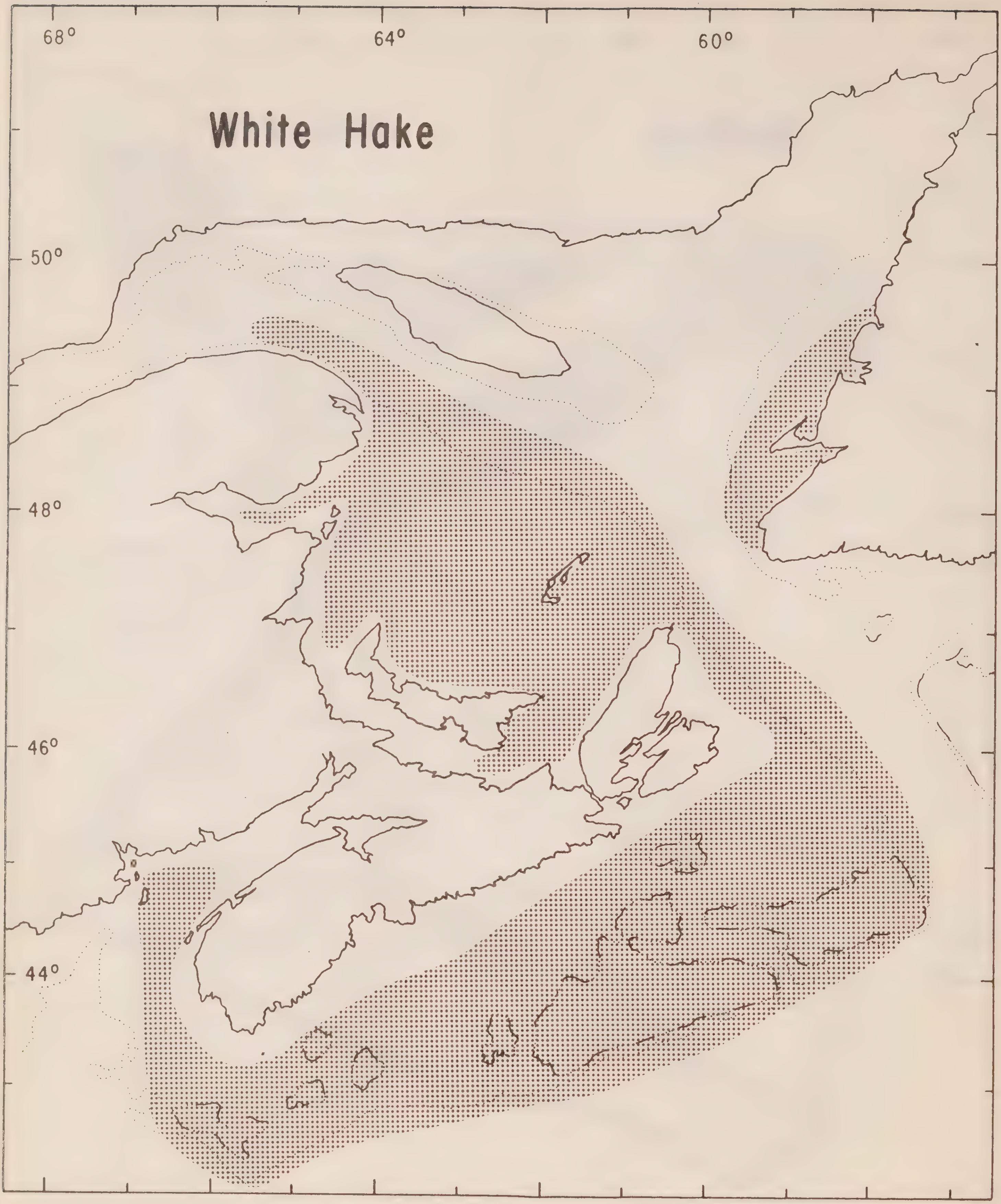



Fig. 18. White hake distribution in ICNAF Subarea 4 (from Kohler 1968).

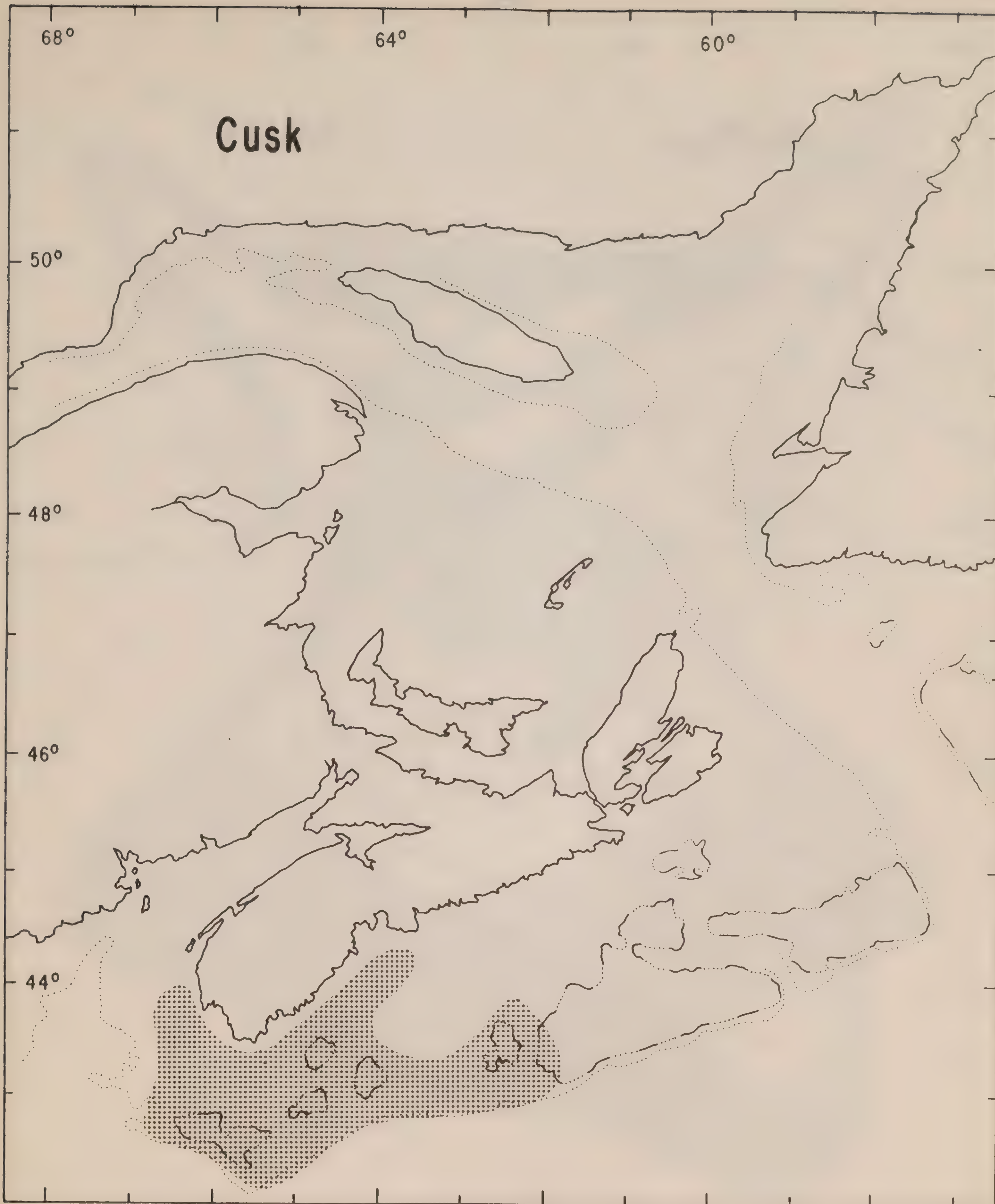



Fig. 19. Cusk distribution in ICNAF Subarea 4 (from Kohler 1968).

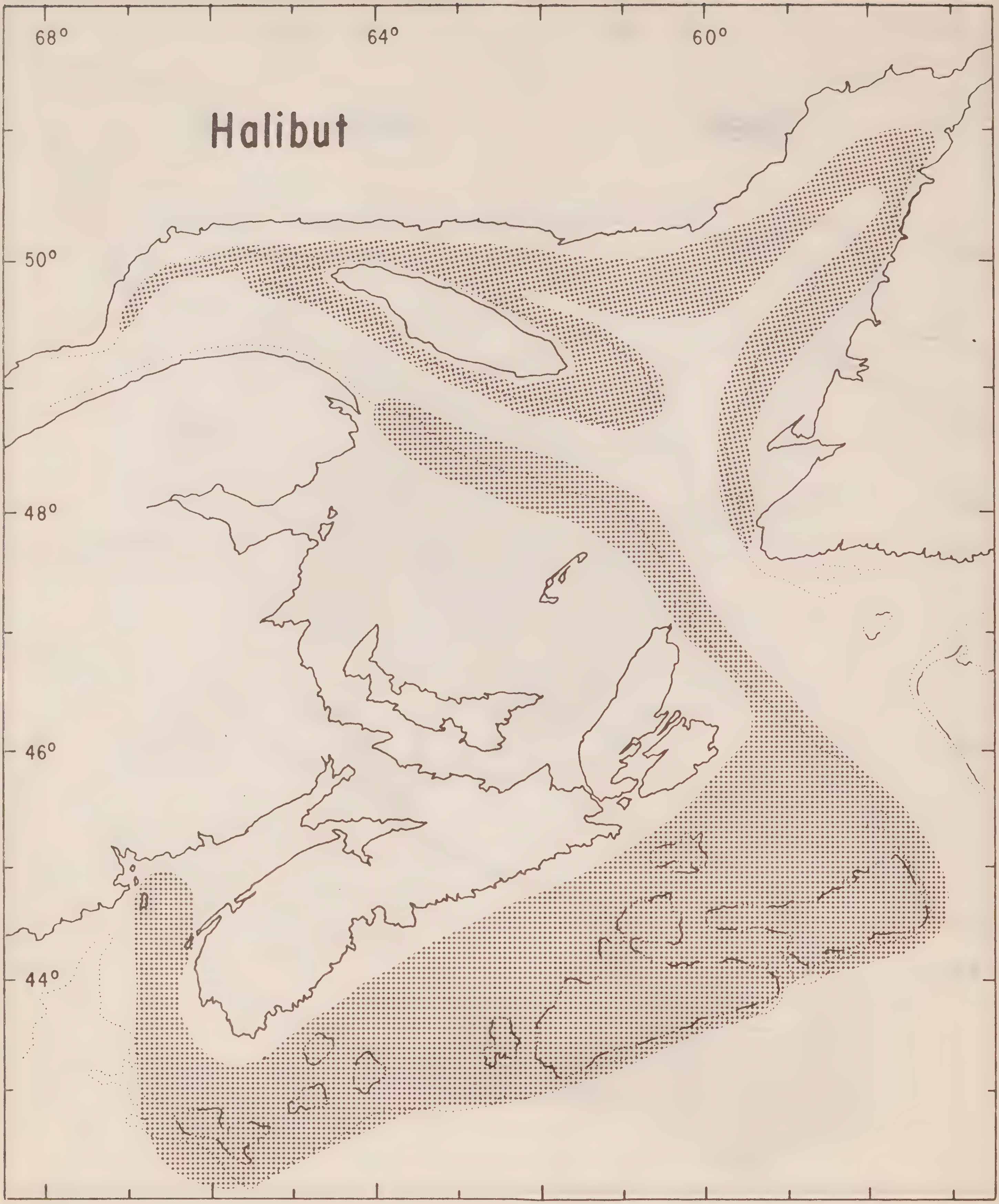



Fig. 20. Halibut distribution in ICNAF Subarea 4 (from Kohler 1968).

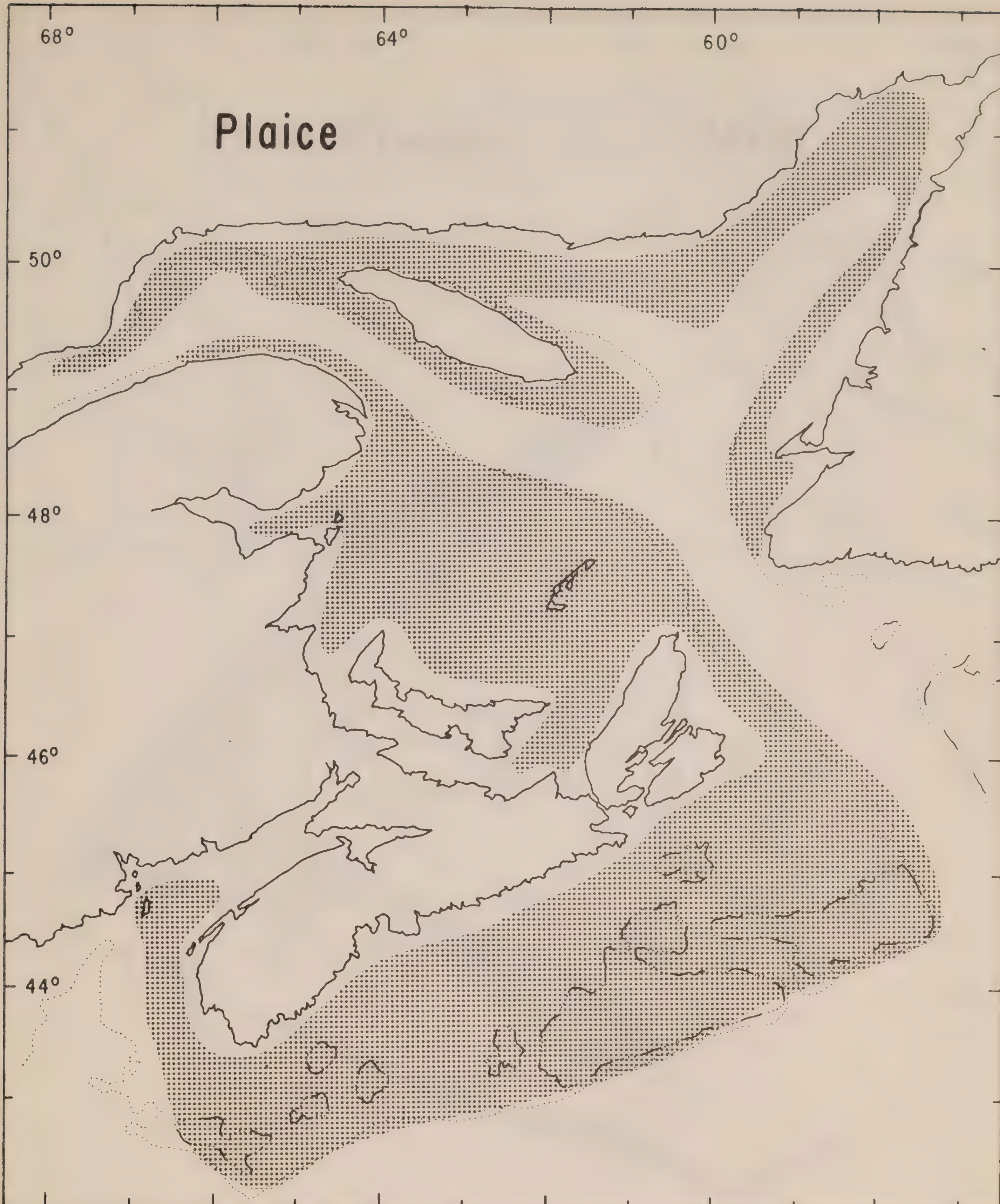



Fig. 21. Plaice distribution in ICNAF Subarea 4 (from Kohler 1968).

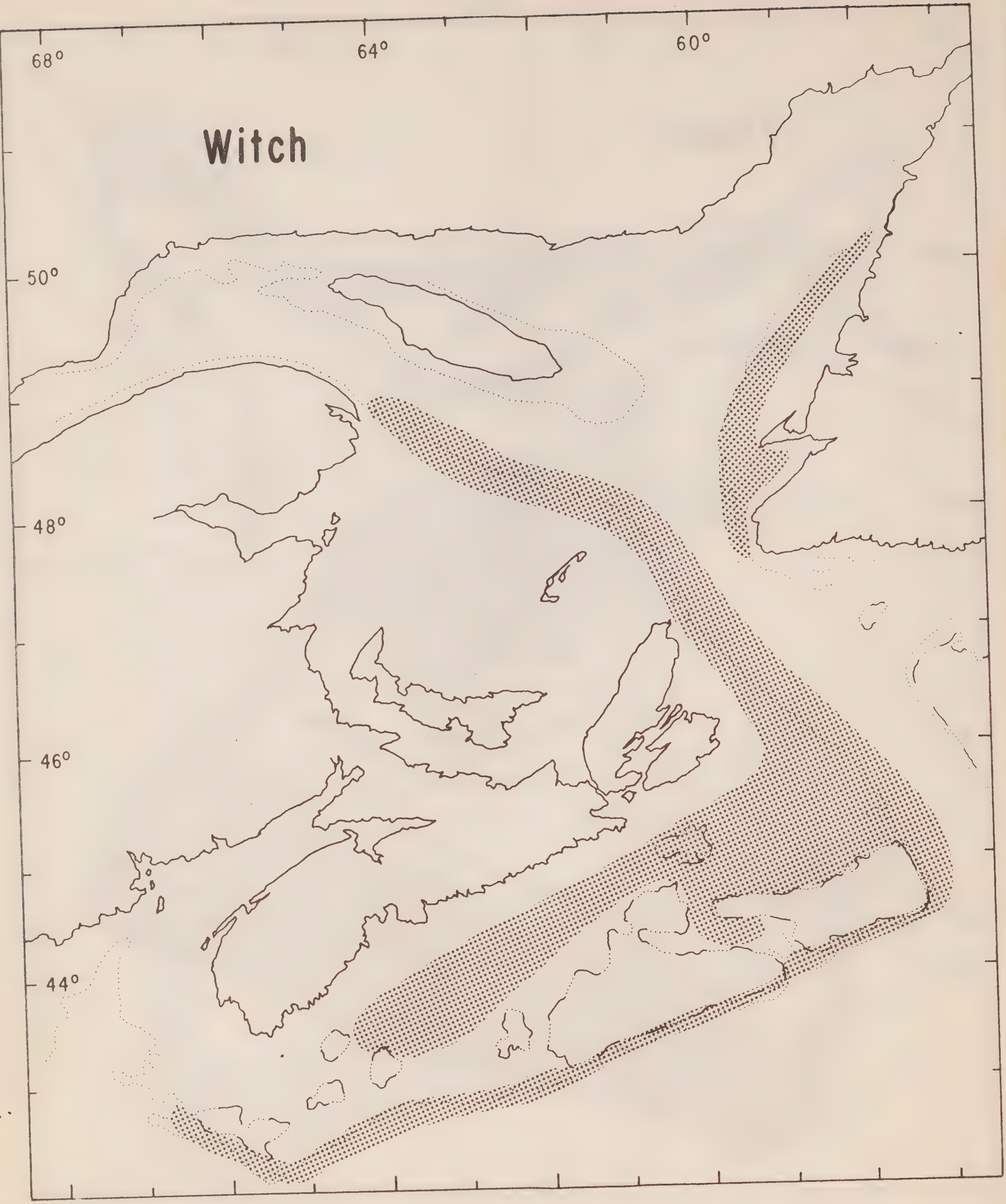



Fig. 22. Witch distribution in ICNAF Subarea 4 (from Kohler 1968).

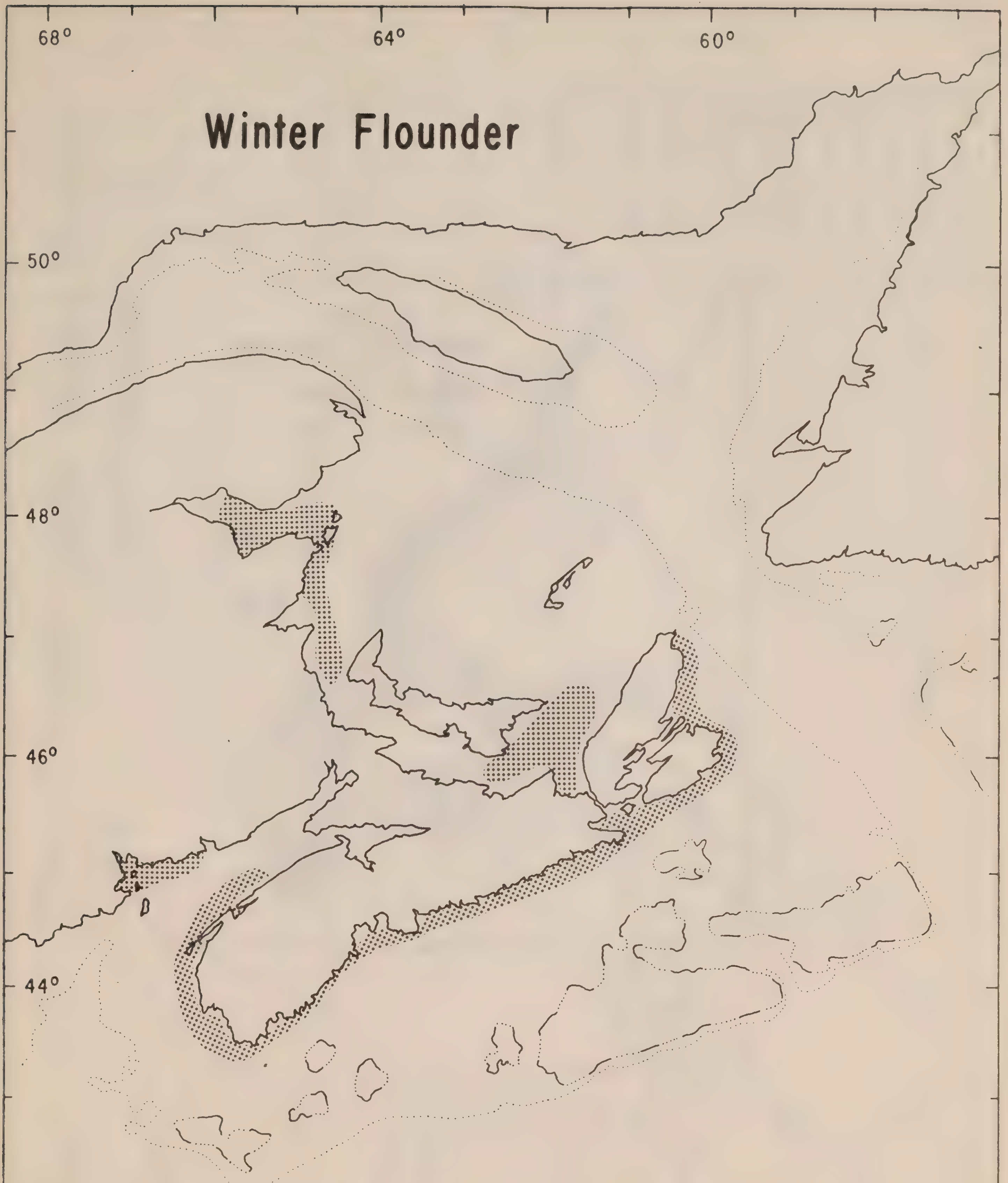



Fig. 23. Winter flounder distribution in ICNAF Subarea 4 (from Kohler 1968).

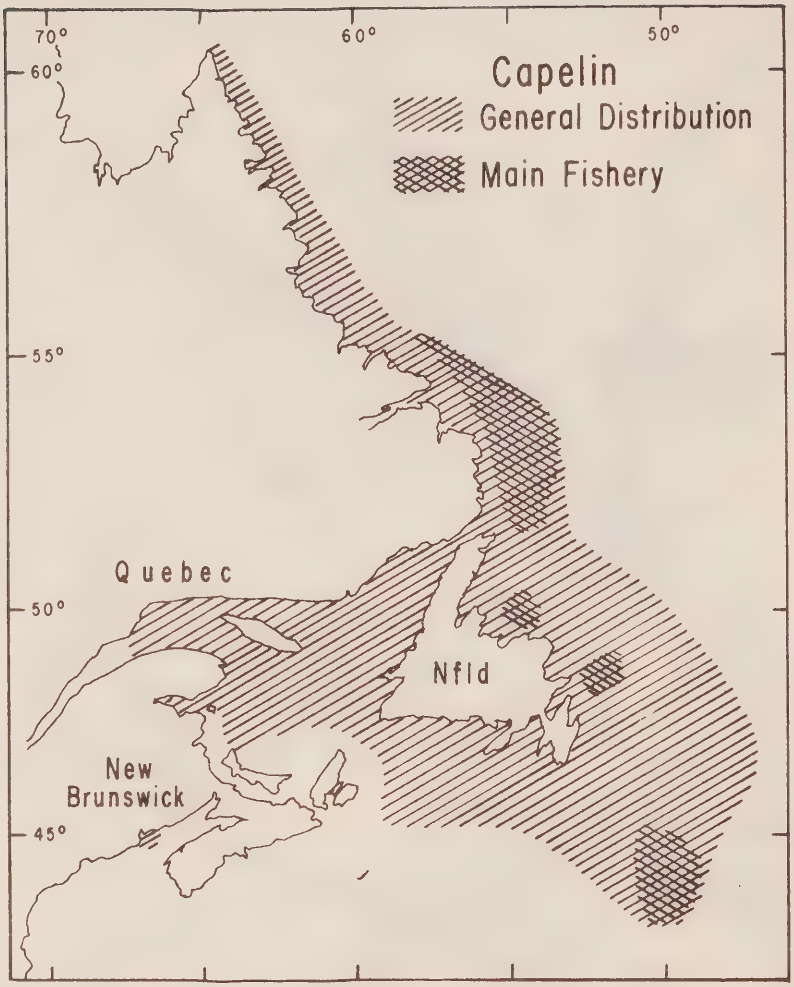
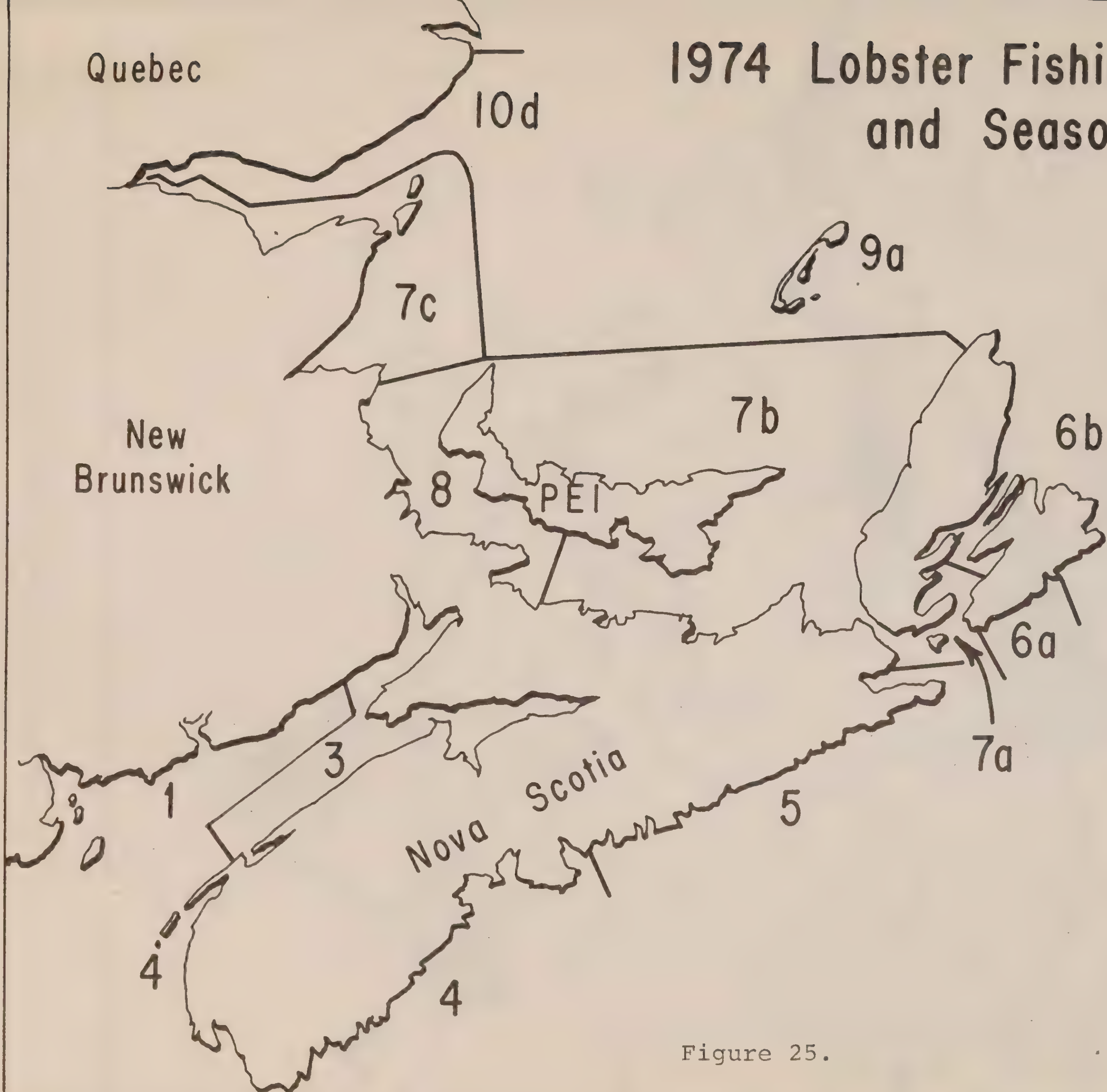



Fig. 24. General distribution and areas of concentration of capelin off the Canadian Atlantic coast (from Parsons et al. 1974).

# 1974 Lobster Fishing Districts and Seasons




| District | Season |
|---|---|
| 1 | Nov.15-June 24 |
| 3 | Oct.15-Dec.31<br>Mar. 1-July 31 |
| 4 | Last Tuesday in<br>Nov. to May 31 |
| 5 | Apr.10-June 30 |
| 6a | May 20-July 20 |
| 6b | May 16-July 15 |
| 7a | May 1-June 30 |
| 7b | May 1-June 30 |
| 7c | May 1-June 30 |
| 8 | Aug.10-Oct.10 |
| 9a | May 10-July 10 |

Figure 25.

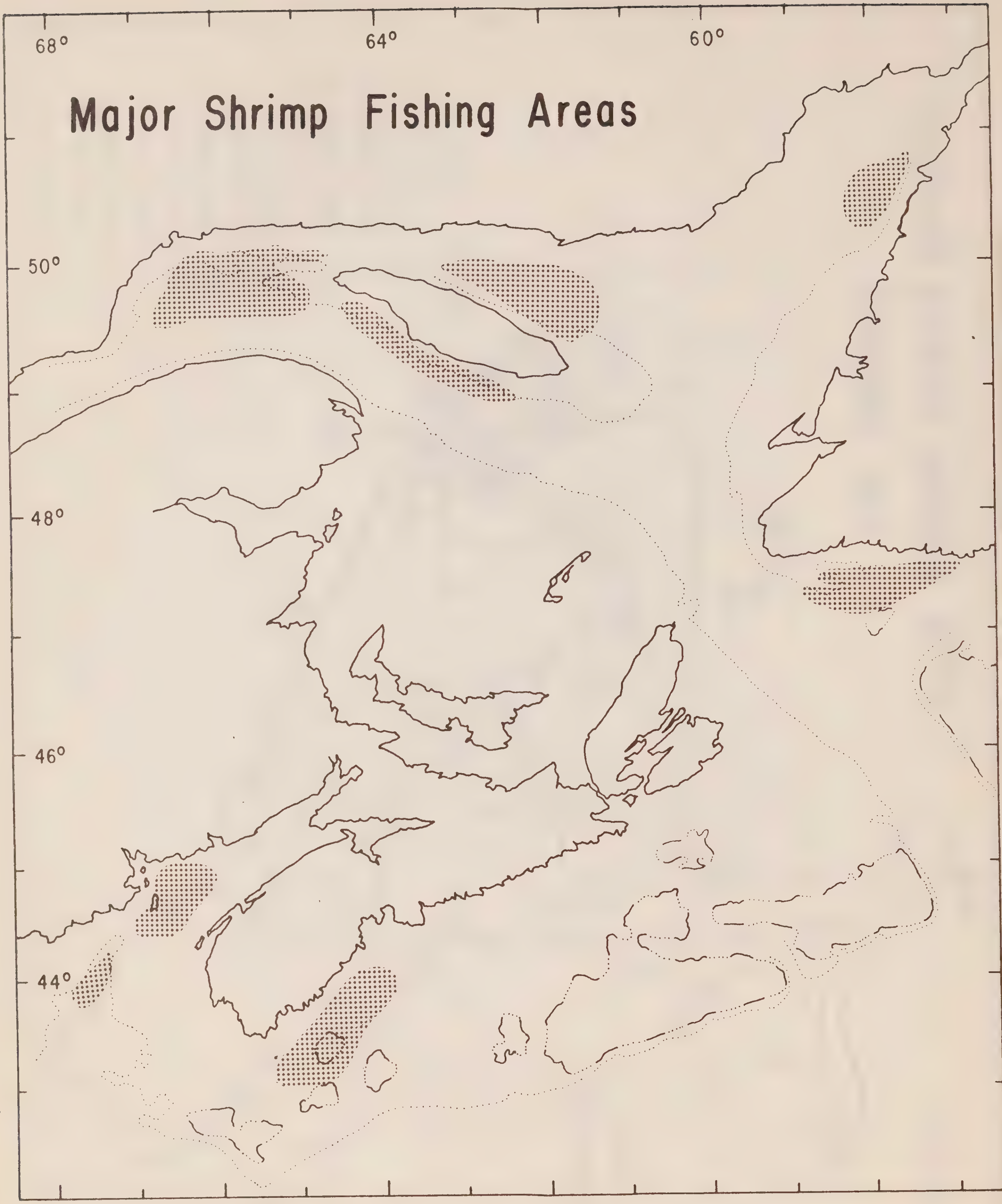



Figure 26 (from Frechet 1971)

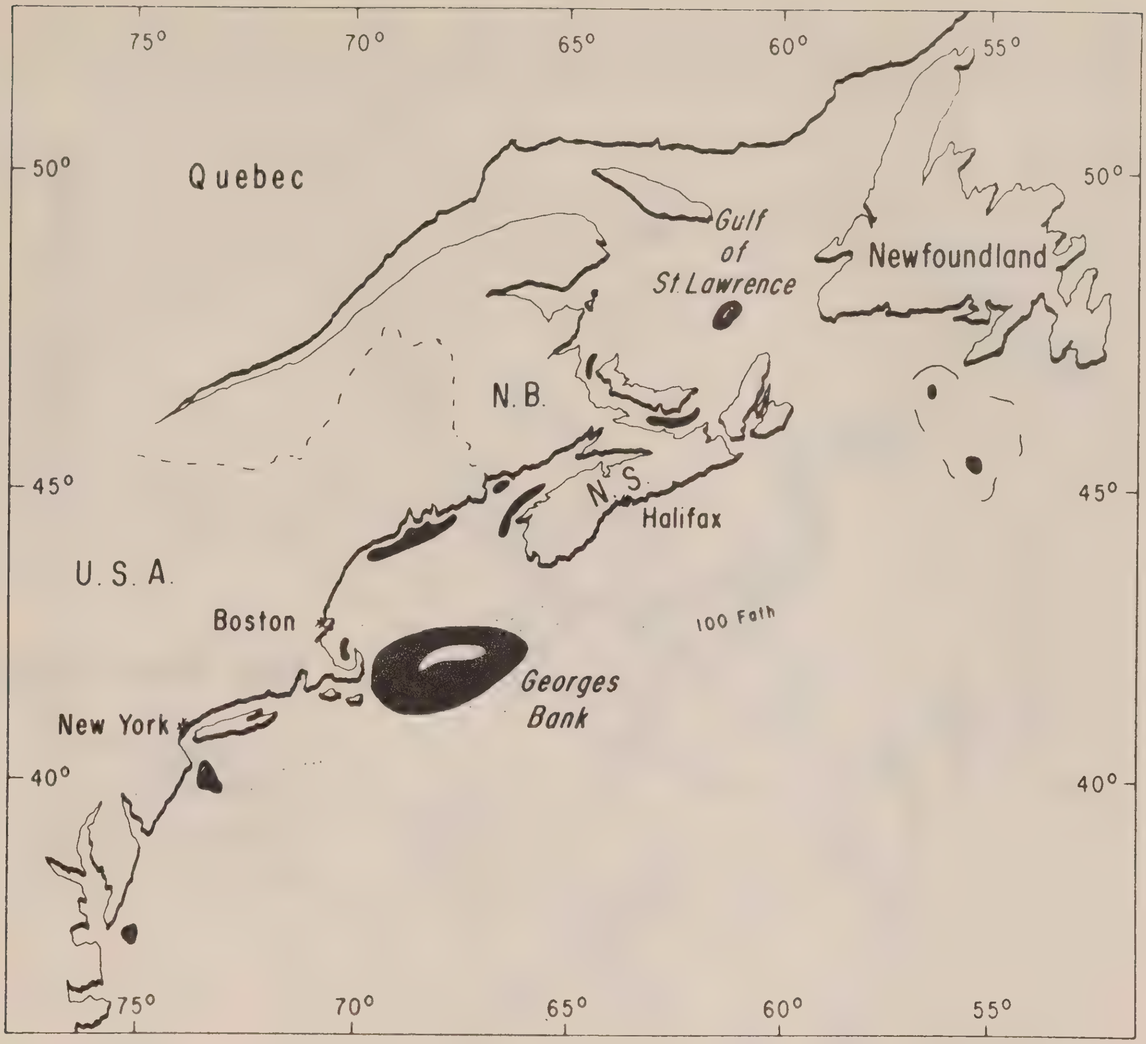



Fig. 27. Locations of important sea scallop fisheries on the Atlantic coast (from Chandler 1974).

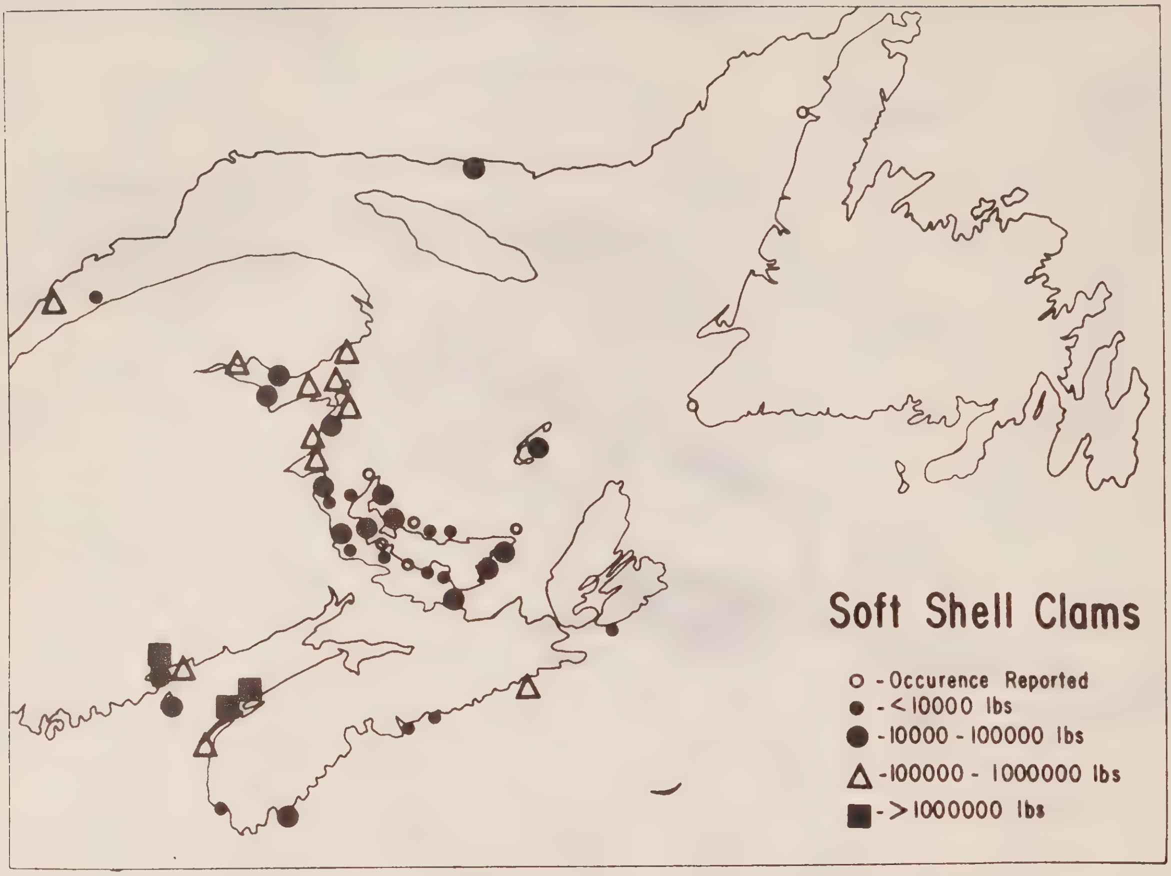



Fig. 28. Distribution of soft shell clams (from Caddy et al. 1974).

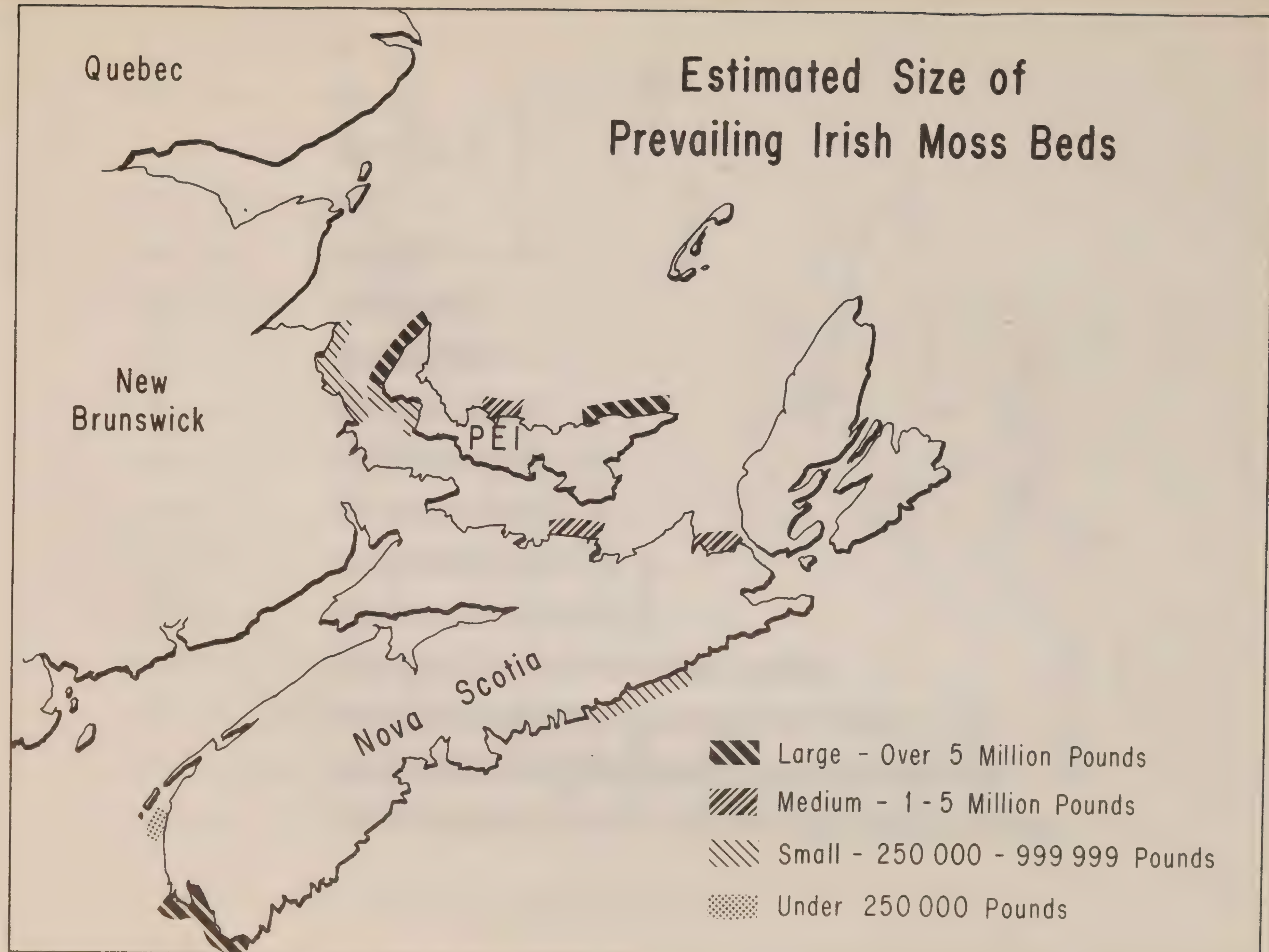



Fig. 29. Irish moss fisheries (from Ffrench 1971).

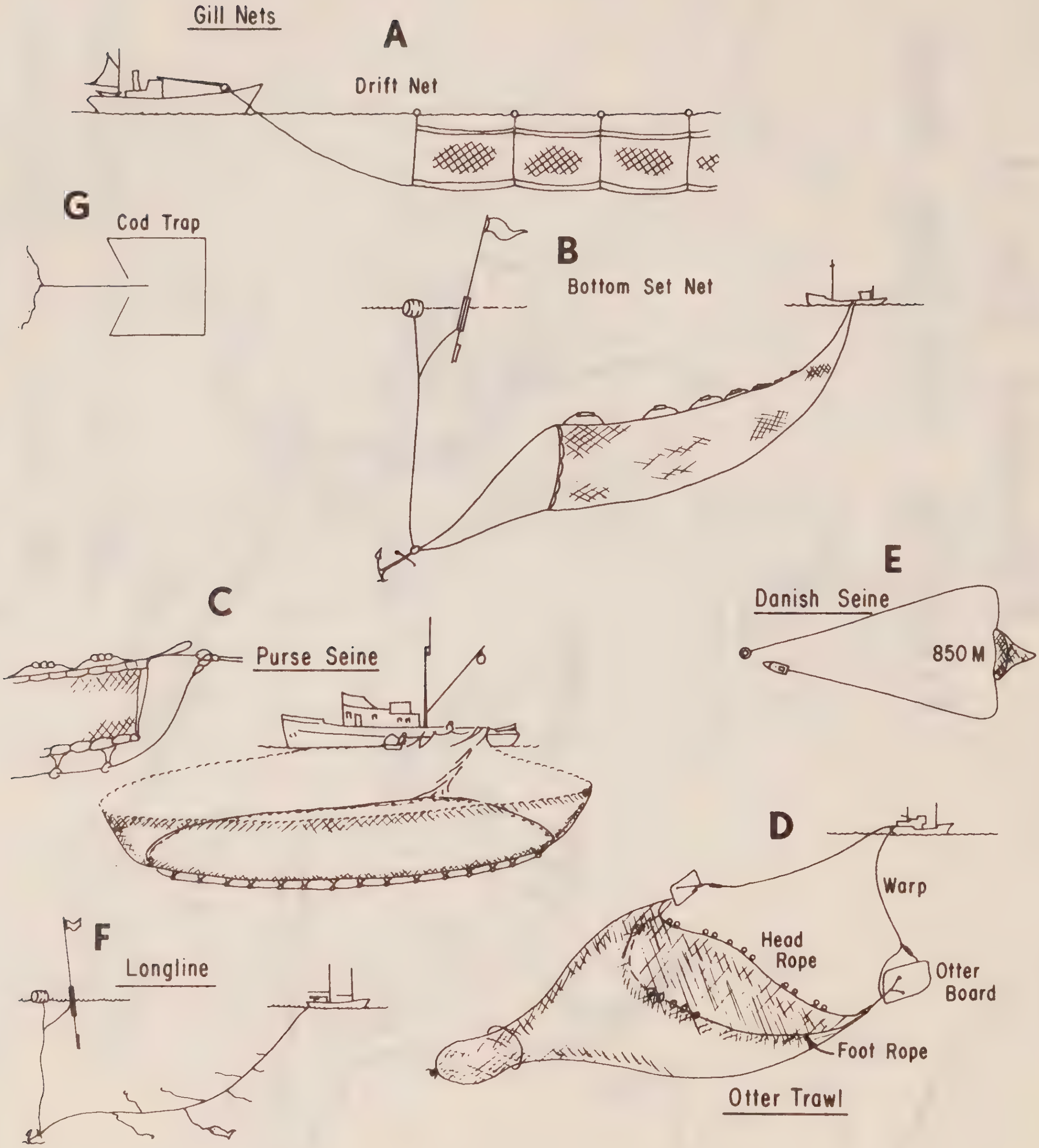



Fig. 30. Fishing Gear.

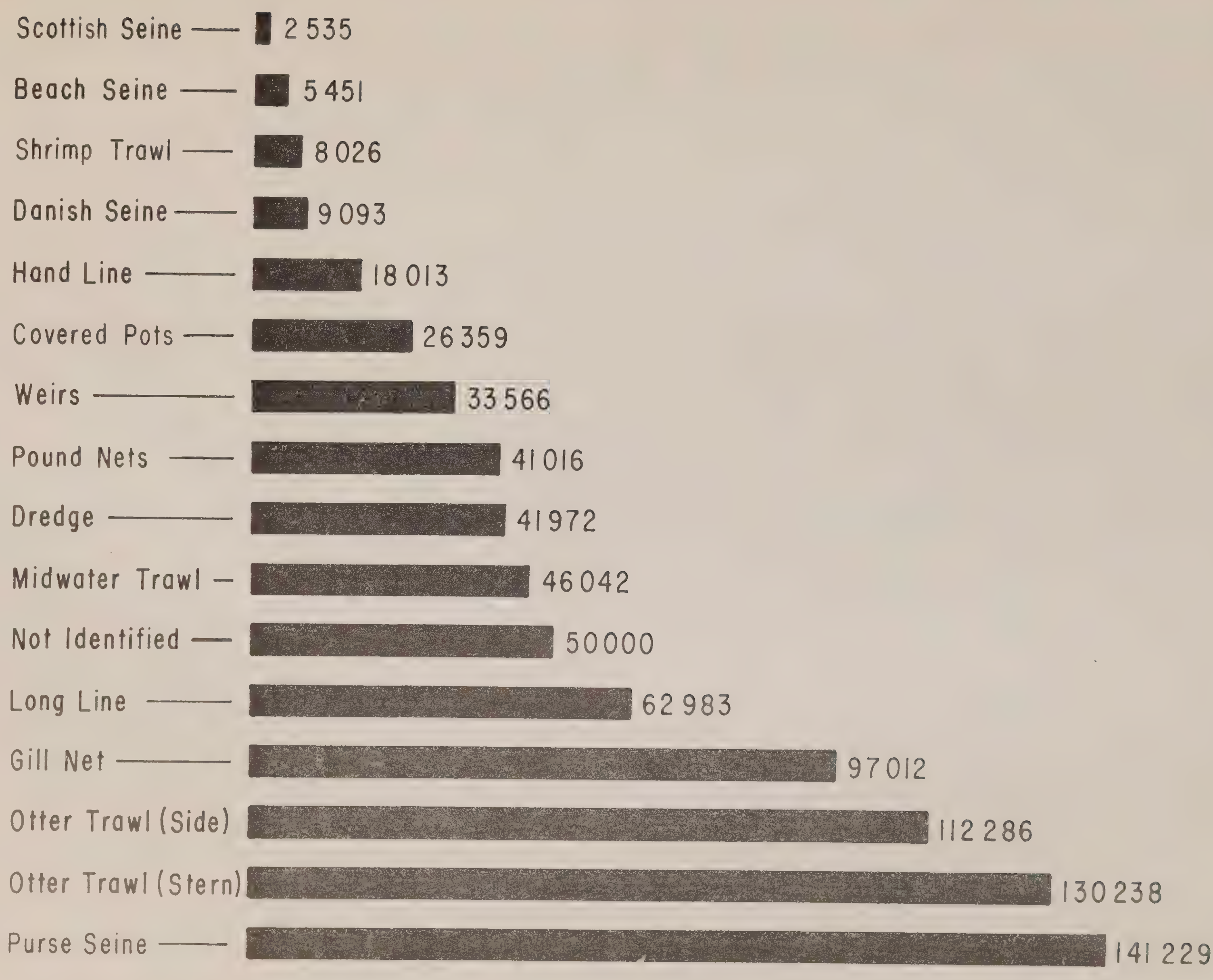



Fig. 31. Canadian landings, all species, by type of gear used. 1973 data (ICNAF Stat. Bull.).

# APPENDIX I

Landed Weights by Species, Gear and Convention Area, 1964-1974

Landed Weights of Cod

Metric tons round fresh

Canada

| Subarea | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 15,629 | 26,334 | 23,995 | 27,753 | 18,120 | 4,678 | 2,038 | 3,320 | 1,729 | 4,745 | 1,806 |
| 3 | 164,511 | 134,931 | 139,684 | 127,219 | 144,954 | 144,782 | 129,116 | 116,244 | 95,829 | 71,767 | 59,071 |
| 4 | 128,292 | 141,894 | 128,474 | 122,172 | 150,610 | 138,340 | 129,159 | 121,949 | 118,643 | 97,483 | 98,561 |
| 5 | 7,133 | 10,746 | 15,985 | 8,529 | 9,188 | 6,056 | 2,609 | 3,098 | 2,598 | 3,288 | 1,493 |
| Convention area | 315,565 | 313,905 | 308,138 | 285,673 | 322,872 | 293,856 | 262,922 | 244,611 | 218,799 | 177,283 | 160,931 |
| **All Countries** | | | | | | | | | | | |
| Convention area | 1,401,613 | 1,462,942 | 1,477,528 | 1,685,064 | 1,860,533 | 1,438,058 | 1,151,933 | 1,055,428 | 1,038,581 | 807,570 | 792,706 |
| Canadian landing percentage | 22.5 | 21.5 | 21 | 17 | 17 | 20 | 23 | 23 | 21 | 22 | 20 |

Landed Weights of Cod by Gear 1973

Metric tons round fresh

| | OTSI[1] | OTSN | MT | ST | DS | SS | PS | GNS | LLS | HL | TRA | POT | WR | DRE | NK | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada[2] | 23192 | 12124 | 1785 | 526 | 1509 | 807 | 0 | 11849 | 17512 | 7249 | 999 | 3 | 7 | 24 | 2583 | 80169 |
| Canada[3] | 6401 | 8423 | 782 | 1623 | 276 | 0 | 1 | 22441 | 19478 | 6977 | 23922 | 0 | 0 | 0 | 6790 | 97104 |
| Total | 29593 | 20547 | 2577 | 2149 | 1785 | 807 | 1 | 34290 | 36990 | 14225 | 24921 | 3 | 7 | 24 | 9373 | 177283 |

1) For abbreviations, see Gear section

2) Maritimes and Quebec

3) Newfoundland

Landed Weights of Haddock

Metric tons round fresh

| | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Canada** | | | | | | | | | | | |
| Subarea 2 | | | | | 1 | | | | | | |
| Subarea 3 | 6,869 | 2,714 | 1,676 | 1,741 | 1,364 | 2,516 | 2,630 | 1,299 | 825 | 521 | 283 |
| Subarea 4 | 38,954 | 32,478 | 39,967 | 40,736 | 38,813 | 37,620 | 22,356 | 26,365 | 15,692 | 16,214 | 13,851 |
| Subarea 5 | 11,695 | 15,048 | 19,417 | 13,629 | 9,443 | 4,049 | 2,016 | 1,715 | 632 | 1,612 | 660 |
| Convention area | 57,518 | 50,240 | 61,060 | 56,106 | 49,621 | 44,185 | 27,002 | 29,379 | 17,149 | 18,347 | 14,794 |
| **All Countries** | | | | | | | | | | | |
| Convention area | 141,991 | 248,646 | 203,174 | 117,369 | 97,051 | 72,206 | 47,969 | 48,880 | 29,059 | 26,140 | 23,197 |
| Canadian landing percentage | 41 | 20 | 30 | 48 | 51 | 61 | 54 | 60 | 59 | 70 | 64 |

Landed Weights of Haddock by Gear 1973

Metric tons round fresh

| | OTSI | OTSN | MT | ST | DS | SS | GNS | LLS | HL | TRA | NK | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada MQ | 4503 | 5598 | 12 | 1 | 33 | 57 | 271 | 6626 | 383 | 3 | 214 | 17701 |
| Canada N | 190 | 206 | 1 | | 91 | | 19 | 90 | 1 | 37 | 11 | 646 |
| Total | 4693 | 5804 | 13 | 1 | 124 | 57 | 290 | 6716 | 384 | 40 | 225 | 18347 |

Landed Weights of Redfish

Metric tons round fresh

Canada

| | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Subarea | | | | | | | | | | | |
| 2 | | | 1 | 2 | 123 | | | | | 6 | |
| 3 | 15,607 | 20,824 | 19,735 | 14,700 | 7,721 | 9,090 | 11,530 | 6,462 | 6,869 | 15,444 | 10,047 |
| 4 | 20,379 | 36,440 | 62,459 | 63,917 | 81,312 | 86,502 | 95,025 | 103,958 | 100,805 | 142,954 | 77,101 |
| 5 | 56 | 68 | 420 | 194 | 197 | 260 | 338 | 269 | 124 | 35 | 59 |
| Convention area | 36,042 | 57,332 | 82,615 | 78,813 | 89,353 | 95,852 | 106,893 | 110,689 | 107,798 | 158,439 | 87,207 |
| All countries | | | | | | | | | | | |
| Convention area | 212,628 | 230,901 | 224,496 | 218,454 | 182,044 | 220,690 | 224,387 | 273,611 | 285,778 | 312,795 | 232,297 |
| Canadian landing percentage | 17 | 25 | 37 | 40 | 49 | 43 | 48 | 41 | 38 | 50 | 38 |

Landed Weights of Redfish 1973
by Gear

| | OTSI | OTSN | MT | ST | DS | SS | GNS | LLS | HL | NK | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada MQ | 22,586 | 4,773 | 78,708 | 2,286 | 5 | 4 | 28 | - | - | - | 108,390 |
| Canada N | 16,177 | 2,929 | 29,176 | 826 | 32 | - | 726 | 164 | 9 | 10 | 50,049 |
| | 38,763 | 7,702 | 107,884 | 3,112 | 37 | 4 | 754 | 164 | 9 | 10 | 158,439 |

Landed Weight of Pollock

Metric tons round fresh

Canada

| | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Subarea | | | | | | | | | | | |
| 3 | 707 | 249 | 328 | 265 | 134 | 82 | 119 | 226 | 181 | 151 | 147 |
| 4 | 28,141 | 25,293 | 14,286 | 12,292 | 16,335 | 13,535 | 9,936 | 10,138 | 16,703 | 25,276 | 21,504 |
| 5 | 1,942 | 2,044 | 4,012 | 5,287 | 1,740 | 2,443 | 853 | 1,636 | 1,366 | 1,727 | 3,536 |
| Convention area | 30,790 | 27,586 | 18,626 | 17,844 | 18,209 | 16,060 | 10,908 | 12,000 | 18,250 | 27,154 | 25,187 |
| All Countries | | | | | | | | | | | |
| Convention area | 43,705 | 38,110 | 36,094 | 24,358 | 23,881 | 23,535 | 19,855 | 27,604 | 33,962 | 43,640 | 38,742 |
| Canadian landing percentage | 71 | 73 | 52 | 73 | 76 | 68 | 55 | 44 | 54 | 62 | 65 |

Landed Weight of Pollock 1973
by Gear

| | OTSI | OTSN | MT | GNS | LLS | HL | TRA | NK | Total |
|---|---|---|---|---|---|---|---|---|---|
| Canada MQ | 11,226 | 11,968 | 13 | 501 | 881 | 1,997 | 60 | 331 | 26,977 |
| Canada N | 41 | 65 | 3 | 20 | 22 | | | 26 | 177 |
| | | | | | | | | | 27,154 |

Landed Weights of White Hake

Metric tons round fresh

| | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Canada** | | | | | | | | | | | |
| Subarea | | | | | | | | | | | |
| 3 | 158 | 126 | 102 | 138 | 79 | 634 | 709 | 4,342 | 4,434 | 4,227 | 4,013 |
| 4 | 3 | 9 | 8,711 | 7,481 | 5,726 | 6,645 | 8,705 | 10,741 | 11,200 | 11,478 | 9,424 |
| 5 | | | | 16 | 85 | 34 | 46 | 100 | 40 | 117 | 232 |
| Convention area | 161 | 135 | 8,813 | 7,635 | 5,890 | 7,313 | 9,460 | 15,183 | 15,674 | 15,822 | 13,669 |
| **All Countries** | | | | | | | | | | | |
| Convention area | 3,496 | 3,212 | 9,958 | 9,948 | 6,227 | 8,909 | 12,033 | 22,763 | 21,200 | 19,421 | 17,937 |
| Canadian landing percentage | 5 | 4 | 89 | 77 | 95 | 82 | 79 | 67 | 74 | 82 | 76 |

Landed Weight of Cusk

Metric tons round fresh

| | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Canada** | | | | | | | | | | | |
| Subarea | | | | | | | | | | | |
| 3 | | 5 | | 9 | 2 | 5 | 10 | 33 | 22 | 13 | 23 |
| 4 | 4,196 | 4,570 | 4,925 | 4,530 | 3,111 | 2,698 | 3,172 | 4,569 | 5,263 | 5,617 | 5,145 |
| 5 | 72 | 203 | 1,048 | 1,705 | 1,100 | 726 | 813 | 1,040 | 768 | 581 | 515 |
| Convention area | 4,268 | 4,778 | 5,973 | 6,244 | 4,213 | 3,429 | 3,995 | 5,642 | 6,053 | 6,211 | 5,683 |
| **All Countries** | | | | | | | | | | | |
| Convention area | 5,772 | 5,996 | 7,186 | 7,170 | 4,910 | 4,257 | 5,073 | 6,612 | 7,026 | 7,592 | 7,262 |
| Canadian landing percentage | 75 | 80 | 83 | 87 | 86 | 81 | 79 | 85 | 86 | 82 | 78 |

Landed Weights of Wolffishes

Metric tons round fresh

Canada

| Subarea | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | | | | 10 | 49 | 7 | | | | 2 | |
| 3 | 513 | 861 | 1,110 | 1,346 | 1,599 | 2,253 | 1,624 | 2,716 | 1,996 | 2,031 | 2,147 |
| 4 | 1,194 | 44 | 86 | 1,054 | 1,781 | 1,861 | 274 | 2,336 | 1,683 | 1,544 | 1,515 |
| 5 | 97 | | 2 | 98 | 205 | 94 | | 98 | 36 | 36 | 25 |
| Convention area | 1,804 | 905 | 1,198 | 2,508 | 3,634 | 4,215 | 1,898 | 5,150 | 3,715 | 3,613 | 3,687 |
| All Countries | | | | | | | | | | | |
| Convention area | 8,622 | 9,752 | 8,192 | 8,838 | 9,773 | 9,165 | 6,519 | 11,785 | 12,314 | 12,404 | 13,635 |
| Canadian landing percentage | 21 | 9 | 15 | 28 | 37 | 46 | 29 | 44 | 30 | 29 | 27 |

Landed Weights of Atlantic Halibut

Metric tons round fresh

Canada

| | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Subarea | | | | | | | | | | | |
| 2 | | | | 1 | | | | | | | |
| 3 | 472 | 219 | 343 | 446 | 461 | 476 | 707 | 528 | 484 | 494 | 389 |
| 4 | 2,041 | 2,264 | 1,635 | 1,669 | 1,607 | 1,508 | 1,307 | 1,385 | 1,133 | 1,148 | 1,057 |
| 5 | 120 | 153 | 110 | 386 | 193 | 96 | 67 | 38 | 37 | 38 | 28 |
| Convention area | 2,633 | 2,636 | 2,088 | 2,502 | 2,261 | 2,080 | 2,081 | 1,951 | 1,654 | 1,680 | 1,474 |
| All Countries | | | | | | | | | | | |
| Convention area | 4,497 | 4,041 | 3,223 | 3,754 | 3,165 | 2,633 | 2,385 | 2,491 | 2,153 | 2,145 | 2,171 |
| Canadian landing percentage | 59 | 65 | 65 | 67 | 71 | 79 | 87 | 78 | 77 | 78 | 68 |

Landed Weights of Greenland Halibut

Metric tons round fresh

| Canada | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Subarea | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
| 2 | | | | 7 | 53 | | | | | 5 | 19 |
| 3 | 1,773 | 8,123 | 16,257 | 16,646 | 13,363 | 11,686 | 10,856 | 9,457 | 9,130 | 6,987 | 5,899 |
| 4 | | 24 | 366 | 367 | 699 | 821 | 1,129 | 978 | 688 | 775 | 1,046 |
| 5 | | | | | | | | | 2 | | |
| Convention area | 1,773 | 8,147 | 16,623 | 17,020 | 14,115 | 12,507 | 11,985 | 10,435 | 9,820 | 7,767 | 6,964 |
| All Countries | | | | | | | | | | | |
| Convention area | 7,138 | 13,203 | 22,369 | 29,264 | 35,087 | 39,947 | 39,842 | 28,919 | 34,856 | 37,467 | 42,130 |
| Canadian landing percentage | 25 | 62 | 74 | 58 | 40 | 31 | 30 | 36 | 28 | 21 | 17 |

Metric tons round fresh

## Landed Weights of Yellowtail

| | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Canada** | | | | | | | | | | | |
| Subarea | | | | | | | | | | | |
| 3 | 226 | 3,131 | 4,324 | 2,195 | 4,825 | 10,572 | 23,101 | 24,416 | 27,174 | 29,225 | 17,457 |
| 4 | 5,353 | 5,431 | 3,927 | 5,231 | 5,381 | 2,831 | 1,006 | 1,072 | 1,008 | 426 | 623 |
| 5 | 240 | 207 | 120 | 146 | 122 | 347 | 82 | 111 | 9 | 12 | 6 |
| Convention area | 5,819 | 8,769 | 8,371 | 7,572 | 10,328 | 13,750 | 24,189 | 25,599 | 28,191 | 29,663 | 18,086 |
| **All countries** | | | | | | | | | | | |
| Convention area | 42,360 | 47,928 | 43,609 | 42,900 | 64,620 | 72,945 | 65,655 | 63,013 | 70,789 | 61,475 | 49,129 |
| Canadian landing percentage | 14 | 18 | 19 | 18 | 16 | 19 | 37 | 41 | 40 | 48 | 37 |

## Landed Weights of Yellowtail by Gear

| | OTS | OTSN | DS | SS | GNS | LLS | TRA | DRE | Total |
|---|---|---|---|---|---|---|---|---|---|
| Canada MQ | 1,087 | 321 | 11 | 60 | | 20 | 1 | 1 | 1,501 |
| Canada N | 2,325 | 25,798 | 26 | | 13 | | | | 28,162 |

Landed Weight of American Plaice

Metric tons round fresh

Canada

| Subarea | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | | | 1 | 15 | 311 | 10 | | 16 | | | |
| 3 | 37,033 | 47,531 | 54,058 | 58,198 | 55,172 | 70,689 | 70,355 | 57,891 | 49,124 | 53,030 | 42,314 |
| 4 | 11,640 | 16,625 | 21,833 | 20,982 | 21,694 | 20,235 | 19,432 | 19,278 | 16,558 | 13,090 | 18,158 |
| 5 | 177 | 180 | 244 | 209 | 178 | 78 | 92 | 43 | 22 | 38 | 29 |
| Convention area | 48,850 | 64,336 | 76,136 | 79,404 | 77,355 | 91,012 | 89,879 | 77,228 | 65,704 | 66,158 | 60,501 |
| All Countries | | | | | | | | | | | |
| Convention area | 60,847 | 89,208 | 106,365 | 128,743 | 128,807 | 121,595 | 117,749 | 111,486 | 99,038 | 97,125 | 92,451 |
| Canadian landing percentage | 80 | 72 | 72 | 62 | 60 | 75 | 76 | 69 | 66 | 68 | 65 |

Landed Weights of American Plaice 1973
by Gear

| | OTSI | OTSN | MT | ST | DS | SS | BS | PS | GNS | LLS | HL | TRA | POT | DRE | NK | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada MQ | 9,006 | 2,375 | 30 | 9 | 2,463 | 854 | 1 | 4 | 322 | 563 | 10 | 28 | 5 | 16 | 240 | 15,926 |
| Canada N | 3,867 | 41,110 | 14 | 79 | 297 | | | | 4,024 | 439 | 27 | 38 | | | 337 | 50,232 |
| | | | | | | | | | | | | | | | | 66,158 |

Metric tons round fresh

## Landed Weight of Witch

### Canada

| Subarea | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | | | | 4 | 4 | | | | | 9 | |
| 3 | 2,168 | 2,014 | 5,303 | 8,447 | 4,912 | 4,376 | 7,459 | 10,414 | 11,542 | 11,879 | 6,605 |
| 4 | 11,756 | 11,318 | 10,758 | 10,209 | 12,153 | 11,420 | 9,722 | 10,636 | 7,889 | 8,075 | 9,054 |
| 5 | 37 | 22 | 68 | 63 | 56 | 80 | 19 | 35 | 13 | 10 | 10 |
| Convention area | 13,961 | 13,354 | 16,129 | 18,723 | 17,125 | 15,876 | 17,200 | 21,085 | 19,444 | 19,973 | 15,669 |
| **All Countries** | | | | | | | | | | | |
| Convention area | 16,569 | 26,368 | 34,670 | 35,891 | 54,362 | 44,890 | 41,728 | 60,884 | 48,065 | 53,605 | 39,689 |
| Canadian landing percentage | 84 | 51 | 47 | 52 | 32 | 35 | 41 | 35 | 41 | 37 | 39 |

## Landed Weight of Witch, 1973 by Gear

| | OTSI | OTSN | MT | ST | DE | SS | GNS | LLS | HL | TRA | NK | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada MQ | 2,481 | 1,611 | 28 | 20 | 2,019 | 569 | 33 | 3 | 97 | | | 6,861 |
| Cabada N | 662 | 7,560 | 12 | 45 | 1,728 | | 3,079 | 10 | 2 | 8 | 6 | 13,112 |
| | | | | | | | | | | | | 19,973 |

Landed Weights of Winter Flounders

Metric tons round fresh

| Subarea | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Canada** | | | | | | | | | | | |
| 3 | 16 | 6 | 8 | | 8 | 9 | 123 | 155 | 7 | | 59 |
| 4 | 4,296 | 5,656 | 4,133 | 3,380 | 1,679 | 3,102 | 4,174 | 4,272 | 2,735 | 3,288 | 3,298 |
| 5 | 160 | 202 | 164 | 89 | 59 | 115 | 64 | 65 | 8 | 14 | 12 |
| Convention area | 4,472 | 5,864 | 4,305 | 3,469 | 1,746 | 3,226 | 4,361 | 4,492 | 2,750 | 3,302 | 3,369 |
| **All Countries** | | | | | | | | | | | |
| Convention area | 18,236 | 17,442 | 19,432 | 15,521 | 12,086 | 20,767 | 16,570 | 18,527 | 13,987 | 14,380 | 11,753 |
| Canadian landing percentage | 25 | 34 | 22 | 22 | 14 | 16 | 26 | 24 | 20 | 23 | 29 |

Landed Weights of Herring

Metric tons round fresh

Canada

| Subarea | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | | | | | | | 30 | 403 | 1,273 | 441 | 11 |
| 3 | 3,335 | 8,128 | 23,096 | 78,411 | 145,252 | 145,372 | 135,246 | 117,802 | 51,304 | 17,159 | 18,293 |
| 4 | 137,050 | 174,497 | 233,093 | 260,029 | 347,750 | 328,599 | 337,229 | 279,124 | 232,455 | 198,358 | 202,840 |
| 5 | 636 | 30 | 47 | 6,532 | 35,171 | 8,339 | 5,012 | 28,381 | 11,691 | 9,190 | 4,261 |
| Convention area | 141,021 | 182,655 | 256,236 | 344,972 | 528,173 | 482,310 | 477,517 | 425,711 | 296,723 | 225,148 | 225,405 |
| All Countries | | | | | | | | | | | |
| Convention area | 302,253 | 262,877 | 430,728 | 594,238 | 922,552 | 826,476 | 771,154 | 705,157 | 548,663 | 485,437 | 418,935 |
| Canadian landing percentage | 47 | 69 | 60 | 58 | 58 | 58 | 62 | 60 | 61 | 46 | 54 |

Landed Weights of Herring by Gear, Canada, 1973

Metric tons round fresh

| | OTSI | PS | WR | GNS | TRA | BS | MT | NK | Total |
|---|---|---|---|---|---|---|---|---|---|
| Canada MQ | 18 | 109,239 | 31,895 | 22,639 | 3,605 | 786 | 1,023 | 1,058 | 170,258 |
| Canada N | - | 40,377 | - | 11,642 | 458 | 2,355 | - | 58 | 54,890 |
| Total | 18 | 149,616 | 31,895 | 34,281 | 4,063 | 3,141 | 1,023 | 1,116 | 225,148 |

Landed Weight of Mackerel

Metric tons round fresh

Canada

| Subarea | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | | | | | | | 20 | 207 | | 372 | |
| 3 | 819 | 814 | 83 | 54 | 186 | 311 | 837 | 1,299 | 1,554 | 2,339 | 1,842 |
| 4 | 9,967 | 11,001 | 11,494 | 11,127 | 10,932 | 12,946 | 14,853 | 13,436 | 14,699 | 18,855 | 14,860 |
| 5 | | | | | | | | | 1 | 53 | |
| Convention area | 10,786 | 11,185 | 11,577 | 11,181 | 11,118 | 13,257 | 15,710 | 14,942 | 16,254 | 21,619 | 16,702 |
| **All Countries** | | | | | | | | | | | |
| Convention area | 12,757 | 15,544 | 20,179 | 27,149 | 71,595 | 82,686 | 122,720 | 140,936 | 222,878 | 353,810 | 196,226 |
| Subarea 6 | * | * | * | * | * | 125,717 | 219,938 | 373,240 | 409,724 | 419,678 | 338,642 |
| Canadian landing percentage in convention area | 85 | 72 | 58 | 41 | 15 | 16 | 13 | 11 | 7 | 6 | 9 |

Landed Weight of Mackerel, 1973
by Gear

| | OTSI | OTSN | DS | BS | PS | GNS | LLS | HL | TRA | WR | NK | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada MQ | 7 | 1 | 1 | 9 | 8,376 | 4,500 | 26 | 1 | 2,310 | 632 | 2,839 | 18,702 |
| Canada N | | | | 522 | 479 | 1,466 | | 79 | 265 | | 106 | 2,917 |
| Total | 7 | 1 | 1 | 531 | 8,855 | 5,966 | 26 | 80 | 2,575 | 632 | 2,945 | 21,619 |

*No record

Landed Weights of Capelin

Metric tons round fresh

| Subarea | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Canada** | | | | | | | | | | | |
| 2 | 383 | | | | | 21 | | | | 53 | 2 |
| 3 | 3,931 | 4,031 | 4,113 | 2,731 | 2,578 | 2,027 | 2,999 | 2,112 | 3,997 | 6,058 | 15,203 |
| 4 | 697 | 942 | 866 | 1,037 | 796 | 1,568 | 456 | 464 | 537 | 429 | 420 |
| Convention area | 5,011 | 4,973 | 4,979 | 3,768 | 3,374 | 3,616 | 3,455 | 2,576 | 4,534 | 6,540 | 15,625 |
| **All Countries** | | | | | | | | | | | |
| Convention area | 9,017 | 6,606 | 6,337 | 7,502 | 3,574 | 3,791 | 6,579 | 5,782 | 73,480 | 272,502* | 291,136 |
| Canadian landing percentage | 55 | 75 | 79 | 50 | 94 | 95 | 53 | 45 | 6 | 2 | 5 |

*Includes 218,036 m.t. USSR
41,293 Norway

Landded Weights of Alewife

Metric tons round fresh

Canada

| Subarea | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 4,730 | 5,473 | 3,703 | 2,978 | 3,208 | 1,655 | 3,278 | 10,938 | 7,784 | 8,443 | 8,809 |
| **All Countries** | | | | | | | | | | | |
| Convention area | 7,215 | 10,799 | 29,225 | 35,445 | 25,806 | 27,840 | 17,886 | 25,556 | 16,604 | 14,505 | 17,953 |
| Canadian landing percentage | 66 | 51 | 13 | 9 | 13 | 6 | 18 | 43 | 47 | 58 | 49 |

Landed Weights of Smelt

Metric tons round fresh

Canada

| Subarea | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 7 | 7 | 16 | 19 | 5 | 10 | 12 | 15 | 14 | 2 | 13 |
| 4 | 1,859 | 1,927 | 1,913 | 1,646 | 1,703 | 1,963 | 1,794 | 1,367 | 1,219 | 1,515 | 1,874 |
| Convention area | 1,866 | 1,934 | 1,929 | 1,665 | 1,708 | 1,973 | 1,806 | 1,382 | 1,233 | 1,517 | 1,887 |
| All Countries | | | | | | | | | | | |
| Convention area | 1,949 | 2,078 | 2,089 | 1,766 | 1,785 | 2,052 | 1,871 | 1,443 | 1,265 | 1,559 | 1,918 |
| Canadian landing percentage | 96 | 93 | 92 | 94 | 96 | 96 | 97 | 96 | 97 | 97 | 98 |

Metric tons
round fresh

## Landed weights of swordfish

| Subarea | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Canada** | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| 3 | 520 | 587 | 1,049 | 1,526 | 235 | 969 | 1,979 | | | | |
| 4 | 3,459 | 1,148 | 1,011 | 1,321 | 2,030 | 1,263 | 1,239 | | | | |
| 5 | 3,216 | 1,874 | 1,818 | 1,338 | 1,449 | 1,592 | 1,117 | | | 14 | 2 |
| Convention area | 7,195 | 3,609 | 3,878 | 4,185 | 3,714 | 3,824 | 4,335 | | | 14 | 2 |
| **All countries** | | | | | | | | | | | |
| Convention area | 7,538 | 3,936 | 4,119 | 4,396 | 3,852 | 3,914 | 4,433 | 32 | 81 | 277 | 1,375 |
| Canadian landing percentage | 95 | 92 | 94 | 95 | 96 | 97 | 97.5 | 0 | 0 | 5 | 0 |

Landed Weights of Bluefin Tuna

Metric tons round fresh

Canada

| Subares | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|
| 3 | No record for bluefin tuna | 80 | 46 | 71 | 2 | - | - | - | - | - |
| 4 | | - | - | - | 1 | - | - | - | 150 | 701 |
| 5 | | - | - | - | - | - | 424 | - | - | - |
| Convention area | | 80 | 46 | 71 | 3 | - | 424 | - | 150 | 701 |
| Subarea 6 | | | | | | 1,160 | 486 | 165 | 102 | 103 |
| Statistical area | | 80 | 46 | 71 | 3 | 1,160 | 910 | 165 | 252 | 804 |
| All Countries | | | | | | | | | | |
| Convention area | | 955 | 415 | 785 | 661 | 563 | 1,550 | 384 | 745 | 1,182 |
| Statistical area | | 1,197 | 1,990 | 888 | 1,230 | 4,146 | 3,287 | 1,827 | 1,579 | 1,814 |

Landed Weights of Salmon

Metric tons round fresh

Canada

| Subarea | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 440 | 329 | 321 | 435 | 347 | 431 | 385 | 565 | 467 | 575 | 635 |
| 3 | 705 | 715 | 938 | 1,257 | 1,047 | 902 | 1,209 | 891 | 793 | 1,290 | 1,229 |
| 4 | 973 | 1,046 | 1,094 | 1,221 | 742 | 649 | 716 | 401 | 278 | 315 | 385 |
| Convention area | 2,118 | 2,090 | 2,353 | 2,913 | 2,136 | 1,982 | 2,310 | 1,857 | 1,538 | 2,180 | 2,249 |
| All Countries | | | | | | | | | | | |
| Convention area | 3,657 | 2,951 | 3,691 | 4,427 | 2,969 | 4,135 | 4,417 | 4,511 | 3,651 | 4,521 | 4,166 |
| Canadian landing percentage | 58 | 71 | 64 | 61 | 72 | 48 | 52 | 41 | 42 | 48 | 54 |

Landed Weights of Lobster in the Shell

Canada

Metric tons

| Province | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nova Scotia | 8,669 | 8,409 | 7,245 | 6,590 | 7,176 | 8,588 | 7,183 | 8,440 | 6,950 | 7,981 | 6,785 |
| New Brunswick | 3,293 | 2,772 | 2,775 | 2,345 | 2,705 | 3,053 | 2,797 | 2,663 | 2,521 | 2,415 | 2,253 |
| Prince Edward Island | 3,549 | 4,008 | 3,561 | 4,065 | 3,960 | 3,717 | 3,954 | 3,716 | 3,335 | 3,503 | 2,831 |
| Quebec | 1,438 | 1,494 | 1,773 | 1,501 | 1,273 | 1,082 | 1,195 | 1,108 | 1,009 | 979 | 801 |
| Newfoundland | 2,045 | 1,694 | 1,580 | 1,415 | 1,818 | 1,729 | 1,463 | 1,380 | 1,237 | 1,263 | 1,326 |
| Atlantic coast total | 18,994 | 18,377 | 16,934 | 15,916 | 16,932 | 18,169 | 16,592 | 17,307 | 15,052 | 16,141 | 13,996 |
| | | | | | | | | | Thousands of dollars | | |
| Landed value | $24,244 | 26,632 | 22,038 | 23,425 | 24,448 | 29,443 | 29,661 | 33,214 | 36,998 | 40,567 | 37,324 |

Landed Weights of Shrimps (Prawns)

Metric tons round fresh

(from Annual Statistical Review of Canadian Fisheries)

Canada

| Province | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|
| New Brunswick | 697 | 835 | 634 | 434 | 477 | 403 | 914 |
| Nova Scotia | 18 | 5 | 800 | 220 | 209 | 6 | 69 |
| Prince Edward Island | - | - | - | - | - | - | - |
| Newfoundland | 3 | - | 159 | 690 | 185 | 506 | 505 |
| Quebec | 300 | 300 | 429 | 436 | 513 | 1,130 | 1,565 |
| Total | 1,018 | 1,140 | 2,022 | 1,780 | 1,384 | 2,045 | 3,053 |
| All Countries (from ICNAF Statistical Bulletin) | | | | | | | |
| Convention area | 13,195 | 20,702 | 21,248 | 22,344 | 21,901 | 24,153 | 29,775 |

Landed Weights of Sea Scallops[+]

Metric tons round fresh

| | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972* | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Canada** | | | | | | | | | | | |
| Subarea | | | | | | | | | | | |
| 2 | | | | | | | | 34 | | | |
| 3 | 2,989 | 132 | | 1,339 | 118 | 780 | 1,267 | 273 | 238 | | |
| 4 | 10,568 | 9,883 | 5,107 | 7,003 | 14,914 | 15,385 | 13,648 | 8,966 | 8,030 | 6,907 | 2,883 |
| 5 | 49,156 | 36,803 | 40,489 | 41,657 | 40,024 | 35,836 | 34,006 | 32,434 | 34,535 | 35,055 | 50,932 |
| Convention area | 62,713 | 46,818 | 45,596 | 49,999 | 55,056 | 52,001 | 48,921 | 41,707 | 42,803 | 41,962 | 53,815 |
| Subarea 6 | No data | No data | 23,165 | 50 | 3,517 | 15 | - | - | 135 | - | - |
| Statistical area | | | 68,761 | 50,049 | 58,573 | 52,016 | 48,921 | 41,707 | 42,938 | 41,962 | 53,815 |
| **All Countries** | | | | | | | | | | | |
| Convention area | 116,922 | 60,350 | 53,879 | 60,912 | 64,743 | 68,593 | 61,859 | 55,849 | 54,029 | 54,820 | 63,424 |
| Statistical area | | | 129,080 | 88,726 | 104,190 | 84,402 | 70,687 | 63,304 | 65,048 | 61,962 | 76,516 |
| Canadian landing percentage convention area | 54 | 78 | 85 | 82 | 85 | 76 | 79 | 75 | 79 | 77 | 85 |

[+]whole scallops including shell
*2,220 m.t. unidentified scallops from Newfoundland are not included

Landed Weights of Oysters

Metric tons in shell

| | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| New Brunswick | 178 | 352 | 317 | 237 | 337 | 149 | 216 | 310 | 330 | 287 | 600 |
| Nova Scotia | 287 | 234 | 339 | 306 | 262 | 292 | 73 | 77 | 111 | 73 | 25 |
| Prince Edward Island | 1,270 | 995 | 935 | 730 | 800 | 845 | 943 | 844 | 462 | 660 | 623 |
| Atlantic Region | 1,735 | 1,581 | 1,591 | 1,273 | 1,399 | 1,286 | 1,232 | 1,231 | 903 | 1,020 | 1,248 |

Metric tons
in the shell

## Landing of Soft-Shell Clams

Canada

| Province | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 |
|---|---|---|---|---|---|---|---|---|---|---|
| New Brunswick | 318 | 450 | 587 | 523 | 650 | 760 | 1,463 | 2,270 | 1,400 | 1,515 |
| Nova Scotia | 475 | 418 | 563 | 980 | 1,100 | 1,820 | 1,530 | 1,580 | 810 | 900 |
| Prince Edward Island | 32. | 17.3 | 36.7 | 47.5 | 82. | 86.5 | 72. | 74.3 | 42.5 | 55.8 |
| Quebec | 495 | 467 | 569 | 255 | 284 | 250 | 172.5 | 173.5 | 650 | 330 |
| Newfoundland | - | - | - | - | - | - | - | - | - | - |
| Total east coast | 1,320 | 1,352.3 | 1,755.7 | 1,805.5 | 2,116 | 2,916.5 | 3,237.5 | 4,097.8 | 2,902.5 | 2,800.8 |

Landed Weights of Irish Moss

Metric tons

Canada

| | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 |
|---|---|---|---|---|---|---|---|---|---|---|
| Nova Scotia | 9,366 | 10,046 | 11,608 | 13,750 | 14,600 | 18,500 | 14,200 | 12,000 | 9,657 | 10,652 |
| New Brunswick | 196 | - | 430 | 550 | 600 | 1,700 | 3,520 | 1,500 | 1,084 | 1,032 |
| Prince Edward Island | 3,231 | 7,773 | 11,095 | 21,700 | 24,400 | 23,485 | 30,200 | 23,000 | 13,825 | 22,282 |
| Quebec | - | - | - | - | - | - | - | - | - | - |
| Newfoundland | - | - | - | - | - | 115 | 80 | - | - | - |
| Atlantic | 12,793 | 17,819 | 23,133 | 36,000 | 39,600 | 43,800 | 48,000 | 36,500 | 24,566 | 33,966 |

Exports of Irish Moss and Sea Plants in 1973 to:

| | |
|---|---|
| Denmark | 1,426 |
| United States | 4,222 |
| Others | 54 |
| | 5,702 |

Pacific Marine Science Report 76-19



# OCEANOGRAPHIC DATA REPORT
# D' IBERVILLE FIORD, ELLESMERE ISLAND, N.W.T.
## March to April 1975

by

Frozen Sea Research Group

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*Pacific Marine Science Report 76-19*

# OCEANOGRAPHIC DATA REPORT
# D'IBERVILLE FIORD, ELLESMERE ISLAND, N.W.T.
# MARCH TO APRIL 1975



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September, 1976

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# INTRODUCTION

This is the third oceanographic data report listing information obtained from d'Iberville Fiord, Ellesmere Island, N.W.T. The first report (F.S.R.G., 1973) covers the period March to April, 1973; the second report (F.S.R.G., 1975) covers the period March to April, 1974, and August, 1974.

D'Iberville Fiord is an appendage to the Nansen Sound - Greely Fiord system on northwestern Ellesmere Island. The fiord, shown in Figure 1, is located at 80° 30'N, 79° 00' W and is about 35 km by 6 km with an area of 213 $km^2$. A longitudinal section of the fiord is also shown in Figure 1. A sill near the mouth of the fiord reaches a maximum depth near 200 meters. The sill isolates the deep water within the fiord which is marked by values of salinity and temperature significantly different than those at similar depths outside the fiord. The maximum depth within the fiord is just inside the sill where it reaches a depth near 560 meters.

D'Iberville Glacier terminates in a floating ice shelf at the head of d'Iberville Fiord. The glacier has a marked effect on the temperature structure of the fiord water above 100 meters, the probable maximum depth of the ice shelf. The coldest temperatures measured in the fiord (-1.7°C) were found at 80 m about 1 km west of the ice shelf which was the closest one could reasonably approach. The mean flow rate of the glacier has been measured as 1.1 m $day^{-1}$ (Holdsworth, 1976). The advancing glacial ice fractures and displaces the sea ice adjacent to its snout making close approach both difficult and dangerous.

During the period September to July, the fiord is completely covered by sea ice which remains landfast until shore leads develop in June. The sea ice cover normally consists of extensive young (annual) ice with patches of second-year ice and some rafted and hummocked ice. The fiord was partially ice free in August 1974 when some oceanographic data were obtained (F.S.R.G., 1975) and had a normal sea ice cover in the spring of 1975. In the spring the sea ice was covered with a layer of snow 20 to 40 cm thick. The inner two-thirds of the fiord is relatively protected from wind by the surrounding mountains so that the snow there is typically light, powdery and has the greatest thickness. The more exposed areas at the mouth of the fiord and in Greely Fiord are covered with dense wind packed snow (sastrugi). The sea ice thickness reflects this variation in the density and depth of the insulating snow cover.

The physical oceanography of the area has been reported on by Ford and Hattersley-Smith (1965), Hattersley-Smith and Serson (1966), Lake and Walker (1973), and Lake and Walker (1976). Data included in this report are pressure, temperature, salinity, sigma-T and sound velocity. Other data collected but not reported here are meteorological parameters, water levels (tides), current profiles and current time series measurements, snow characteristics and time lapse photography of ice movement. The locations of experiment sites are given in Figure 1 and the experiment number at each of the sites is listed in Table 1.

## Data Recording

Conductivity (c), temperature (T) and pressure or depth (D) were

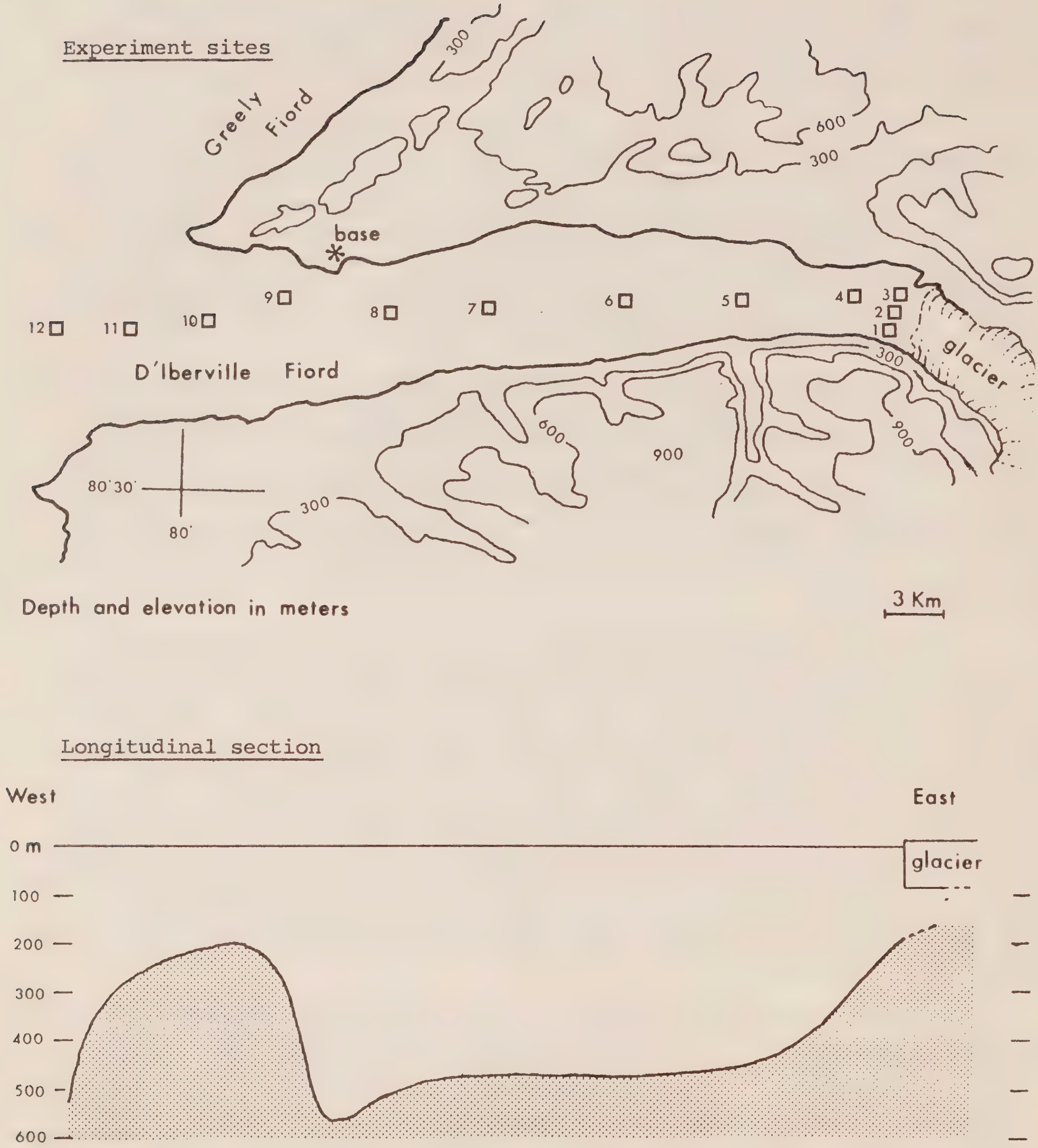
Experiment sites
Greely Fiord
300
600
300
base
1 2 3 4 5 6 7 8 9 10 11 12
D'Iberville Fiord
glacier
300
600
900
900
80°30'
80°
300
Depth and elevation in meters
3 Km
Longitudinal section
West
East
0 m
100
200
300
400
500
600
glacier

Figure 1

TABLE 1

Sites and Corresponding Experiment Numbers

| | |
|---|---|
| Site 1 | Exper. No. 1061 |
| 2 | 1063 |
| 3 | 1065 |
| 4 | 1067, 1069 |
| 5 | 1071 |
| 6 | 1073 |
| 7 | 1075 |
| 8 | 1060, 1062, 1074*, 1076*, 1078, 1079, 1080, 1081, 1082*, 1084*, 1086, 1088*, 1090*, 1092 |
| 9 | 1064 |
| 10 | 1070 |
| 11 | 1068 |
| 12 | 1066 |

*recorded with integrating system - see text.

measured with Guildline 8101A CTD units. To monitor the accuracy of the CTD measurements water samples were taken from time to time with oceanographic bottles. These water samples were run through a Hytech Model 6220 bench salinometer calibrated with Standard Sea Water. Thermistors used to check water temperatures were calibrated in a triple point cell. Values obtained from the bench salinometer and thermistors were compared to the CTD values obtained coincidentally and temperature and salinity corrections were determined. A detailed discussion of the measurement technique is given in Lewis and Sudar (1972).

The principal recording system for output of the Guildline instrument was a Vidar 5400 data logger with printed and punched paper tape output. Each of the three parameters, temperature, conductivity and pressure are read by the data logger instantaneously and sequentially once in each meter of depth. The sensors on the CTD unit are displaced so that, for a correct lowering speed, they sample the same segment of water. As part of a study of optimum measuring techniques an integrating system was used in the recording of some CTD profiles. This system integrated each of the three parameters simultaneously for one second after which the values were stored and recorded sequentially. Measurements in this mode were thus on the basis of time (1 per second) rather than depth. As lowering rates were between 0.4 and 0.7 m $sec^{-1}$. more than one reading per meter was obtained. For this reason the depth column in the data listing is left blank as this information could not be recovered. The experiments for which the integrator was used are indicated in Table 1.

## Data Processing

Salinity values determined from CTD data occasionally indicated statically unstable water structure. Where these apparent instabilities could be attributed to insufficiently fast initial instrument lowering speeds or to sharp vertical gradients the conductivity values were discarded.

## Data Processing - Equations

### (a) Salinity

The Perkin-Walker equation (Perkin and Walker, 1972) was used to calculate salinity (S) from values of conductivity (C), temperature (T) and pressure (P). The equation is a numerical fit to the experimental data of Brown and Allentoft with a linear pressure correction. The temperature values used are with respect to the International Practical Temperature Scale of 1968 (Comite International des Poids et Mesures, 1969).

Where units are C(mmho/cm), T(°C), P(db), S(°/₀₀) the equations used were:

$$C(S.T.O) = C(S.T.P)\left[1 + P\left\{49436+1567T+21.33T^2+554.43C(S.T.P)\right\}^{-1}\right]^{-1}$$

$$R_t = C(S.T.O)\left[29.03916\ (1+.0297175T+.00015551T^2-.000000789T^3)\right]^{-1}$$

$$R_o = R_t - 10^{-5}\left[6.0 + 380\sin\pi\left\{\frac{R_t+.04}{1.03}\right\} + 15\sin 3\pi\left\{\frac{R_t+.04}{1.03}\right\}\right]$$

$$\times\left[\begin{array}{c}.0777T-.000454T^2\\ -.000018T^3\end{array}\right]$$

$$S = -.5933 + 32.4822R_o + 3.1106R_o^2 + .004\sin 2\pi\left[\frac{R_o-.64}{.57}\right]$$

$$\text{for } 0.4 \leq R_o \leq 1.2$$

$$S = -.2166 + 30.686R_o + 5.247R_o^2 \quad \text{for } 0.14 \leq R_o \leq 0.4$$

A correction must be added to salinities calculated from the above equations where temperatures fall below +1.0° C. The correction, based on Dauphinee's work, is

$$\Delta S = \delta[(-3.6 + 5.0T - 2.45T^2)10^{-3}]$$

where $\delta = 1$ for $-2° < T < 1°C$, $\delta = 0$ for $T \geq 1°C$

(b) Sigma τ

The sigma τ equation was taken from the work of Cox, McCartney and Culkin (1970).

$$\sigma_t = \Sigma_i \Sigma_j \; A_{ij} \; T^i S^j$$

| i | j | $A_{ij}$ |
|---|---|---|
| 0 | 0 | $8.00969062 \times 10^{-2}$ |
| 0 | 1 | $7.97018644 \times 10^{-1}$ |
| 0 | 2 | $1.31710842 \times 10^{-4}$ |
| 0 | 3 | $-6.11831499 \times 10^{-8}$ |
| 1 | 0 | $5.88194023 \times 10^{-2}$ |
| 1 | 1 | $-3.25310441 \times 10^{-3}$ |
| 1 | 2 | $2.87941530 \times 10^{-6}$ |
| 2 | 0 | $-8.11465413 \times 10^{-3}$ |
| 2 | 1 | $3.89187483 \times 10^{-5}$ |
| 3 | 0 | $4.76600414 \times 10^{-5}$ |

(c) Sound Velocity

Sound speed (V) was calculated using Wilson's (1960) equation where salinity (S) is in °/₀₀, pressure (P) in db and V in $msec^{-1}$.

$$V = \Sigma_{ijk} \; V_{ijk} \; Q^i (S-35)^j \; T^k$$

where $Q = 1.00323 + 0.1019716P$

and where

$V_{000} = +1449.14$

$V_{001} = +4.5721$

$V_{002} = -4.4532 \times 10^{-2}$

$V_{003} = -2.6045 \times 10^{-4}$

$V_{004} = +7.9851 \times 10^{-6}$

$V_{010} = +1.39799$

$V_{011} = -1.1244 \times 10^{-2}$

$V_{012} = +7.7711 \times 10^{-7}$

$V_{020} = +1.69202 \times 10^{-3}$

$V_{100} = +1.60272 \times 10^{-1}$

$V_{101} = -1.8607 \times 10^{-4}$

$V_{102} = +7.4812 \times 10^{-6}$

$V_{103} = +4.5283 \times 10^{-8}$

$V_{110} = +7.7016 \times 10^{-5}$

$V_{111} = +3.1580 \times 10^{-8}$

$V_{112} = +1.5790 \times 10^{-9}$

$V_{200} = +1.0268 \times 10^{-5}$

$V_{201} = -2.5294 \times 10^{-7}$

$V_{202} = +1.8563 \times 10^{-9}$

$V_{210} = -1.2943 \times 10^{-7}$

$V_{300} = +3.5216 \times 10^{-9}$

$V_{301} = -1.9646 \times 10^{-10}$

$V_{400} = -3.3603 \times 10^{-12}$

Data Format

Cruise: Cruise number assigned by C.O.D.C. is 15-75-024

Title: Location description

Experiment No.: Experiment Number. Each CTD drop was assigned a unique experiment number. Listing is chronological, not by experiment number.

Lat.: Latitude of experimental site

Long.: Longitude of experimental site

Water depth: In meters

Depth Incr.: Vertical increment in meters between sequential readings.

Date: DDMMYY

Local Time: HHMM; Greenwich mean time plus 5 hours.

Depth: Corresponds to depth of the CTD transducers below water level as indicated by wire length. This is equivalent to depth as currents were negligible. The first depth is noted and the remaining depths are calculated.

Press: Pressure in decibars as read by the CTD pressure transducer.

Sal.: Salinity in parts per thousand (‰). The letter following the numerical value indicates the accuracy assigned to the value as discussed below.

Temp.: Temperature in degrees Centigrade (°C). The letter following the numerical value indicates the accuracy assigned to the value as discussed below.

Sigmat: Specific gravity anomaly, sigma-T

Sound: Speed of propagation of sound in water in $msec^{-1}$

## Accuracy

The error estimate letter coding after temperature and salinity values is adapted from that used by C.O.D.C. Larger inaccuracies reflect the data processing discussed above and occur in regions of vertical gradients. Accuracies indicated in vertically homogeneous water should correspond to the best accuracy possible with the CTD system used. In this vertically homogeneous water accuracy is determined by comparison of CTD data and bottle and thermistor measurements as outlined above. In areas of vertical gradients the accuracy values assigned are subjective.

The numerical value indicated in the table below corresponds to the last (in this case the third) decimal place. Thus salinity accuracies of ±.005 and ±.05 appear as C and F respectively.

| Possible Error | Code Letter |
|---|---|
| ±0.005 | C |
| ±0.010 | D |
| ±0.020 | E |
| ±0.050 | F |

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OCEANOGRAPHIC DATA

D'IBERVILLE FIORD


TEMPERATURE, C
-2.00
-1.50
-1.00
-0.50
0.00
0.50
1.00
SALINITY 0/00
11.00
15.00
19.00
23.00
27.00
31.00
35.00
SIGMAT
15.00
18.00
21.00
24.00
27.00
30.00
33.00
DEPTH M
1
10
100
1000

| | | |
|---|---|---|
| CRUISE | D'IBERVILLE FIORD-75 | EXPER NO. 1060 |
| LAT N.80-34-50 | LONG W.79-28-00 | WATER DEPTH 534 |
| DEPTH INCR. | DATE 280375 | LOCAL TIME 1150 |

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 3.0 | 2.85 | 24.894 E | -0.701 D | 20.012 | 1432.1 |
| 4.0 | 4.00 | 27.108 E | -0.402 D | 21.791 | 1436.6 |
| 5.0 | 5.05 | 28.457 E | -0.244 D | 22.873 | 1439.2 |
| 6.0 | 5.90 | 29.144 E | -0.187 D | 23.425 | 1440.4 |
| 7.0 | 7.05 | 29.502 E | -0.164 D | 23.712 | 1441.0 |
| 8.0 | 7.95 | 29.737 E | -0.155 D | 23.901 | 1441.4 |
| 9.0 | 8.85 | 29.956 E | -0.189 D | 24.079 | 1441.6 |
| 10.0 | 10.00 | 30.215 E | -0.268 D | 24.290 | 1441.6 |
| 11.0 | 10.85 | 30.500 E | -0.363 D | 24.523 | 1441.5 |
| 12.0 | 11.95 | 30.743 E | -0.412 D | 24.720 | 1441.7 |
| 13.0 | 13.00 | 31.003 E | -0.458 D | 24.931 | 1441.8 |
| 14.0 | 13.95 | 31.256 E | -0.511 D | 25.137 | 1441.9 |
| 15.0 | 15.00 | 31.451 E | -0.565 D | 25.296 | 1442.0 |
| 16.0 | 15.90 | 31.598 E | -0.666 D | 25.418 | 1441.7 |
| 17.0 | 16.80 | 31.705 E | -0.762 D | 25.508 | 1441.4 |
| 18.0 | 17.95 | 31.771 E | -0.856 D | 25.564 | 1441.1 |
| 19.0 | 19.00 | 31.832 E | -0.929 D | 25.615 | 1440.9 |
| 20.0 | 19.95 | 31.881 E | -1.000 D | 25.657 | 1440.6 |
| 21.0 | 21.00 | 31.908 E | -1.056 D | 25.680 | 1440.4 |
| 22.0 | 21.85 | 31.942 E | -1.112 D | 25.709 | 1440.2 |
| 23.0 | 22.95 | 31.975 E | -1.150 D | 25.736 | 1440.1 |
| 24.0 | 23.90 | 32.005 E | -1.194 D | 25.762 | 1440.0 |
| 25.0 | 24.85 | 32.029 E | -1.231 D | 25.783 | 1439.8 |
| 26.0 | 26.00 | 32.052 E | -1.252 D | 25.802 | 1439.8 |
| 27.0 | 26.95 | 32.076 E | -1.279 D | 25.822 | 1439.7 |
| 28.0 | 28.05 | 32.100 E | -1.305 D | 25.842 | 1439.6 |
| 29.0 | 28.95 | 32.122 E | -1.344 D | 25.861 | 1439.5 |
| 30.0 | 29.85 | 32.134 E | -1.364 D | 25.871 | 1439.4 |
| 31.0 | 30.90 | 32.152 E | -1.381 D | 25.886 | 1439.4 |
| 32.0 | 31.95 | 32.173 E | -1.404 D | 25.903 | 1439.3 |
| 33.0 | 32.95 | 32.188 E | -1.423 D | 25.916 | 1439.3 |
| 34.0 | 34.00 | 32.209 E | -1.444 D | 25.933 | 1439.2 |
| 35.0 | 35.05 | 32.228 E | -1.465 D | 25.949 | 1439.2 |
| 36.0 | 35.95 | 32.244 E | -1.481 D | 25.963 | 1439.1 |
| 37.0 | 36.85 | 32.258 E | -1.493 D | 25.975 | 1439.1 |
| 38.0 | 38.00 | 32.278 E | -1.502 D | 25.990 | 1439.1 |
| 39.0 | 38.85 | 32.293 E | -1.511 D | 26.003 | 1439.1 |
| 40.0 | 40.00 | 32.319 E | -1.526 D | 26.024 | 1439.1 |
| 41.0 | 41.05 | 32.336 E | -1.526 D | 26.038 | 1439.1 |
| 42.0 | 42.05 | 32.355 E | -1.524 D | 26.054 | 1439.2 |
| 43.0 | 43.00 | 32.382 E | -1.521 D | 26.076 | 1439.3 |
| 44.0 | 43.95 | 32.413 E | -1.521 D | 26.100 | 1439.3 |
| 45.0 | 45.15 | 32.447 E | -1.515 D | 26.128 | 1439.4 |
| 46.0 | 46.00 | 32.482 E | -1.516 D | 26.156 | 1439.5 |
| 47.0 | 47.00 | 32.517 E | -1.512 D | 26.184 | 1439.6 |
| 48.0 | 48.00 | 32.549 E | -1.506 D | 26.211 | 1439.6 |
| 49.0 | 48.90 | 32.587 E | -1.502 D | 26.241 | 1439.7 |
| 50.0 | 50.00 | 32.626 E | -1.499 D | 26.273 | 1439.8 |
| 51.0 | 50.95 | 32.662 E | -1.488 D | 26.302 | 1439.9 |
| 52.0 | 52.15 | 32.691 E | -1.486 D | 26.324 | 1440.0 |
| 53.0 | 53.00 | 32.721 E | -1.485 D | 26.350 | 1440.1 |
| 54.0 | 54.20 | 32.757 E | -1.498 D | 26.379 | 1440.1 |
| 55.0 | 55.15 | 32.791 E | -1.496 D | 26.406 | 1440.1 |
| 56.0 | 56.10 | 32.819 E | -1.484 D | 26.429 | 1440.3 |
| 57.0 | 57.20 | 32.847 E | -1.451 D | 26.451 | 1440.5 |
| 58.0 | 58.15 | 32.877 E | -1.465 D | 26.475 | 1440.5 |
| 59.0 | 59.20 | 32.900 E | -1.468 D | 26.494 | 1440.5 |
| 60.0 | 60.20 | 32.923 E | -1.481 D | 26.512 | 1440.5 |
| 61.0 | 61.10 | 32.952 E | -1.477 D | 26.536 | 1440.6 |
| 62.0 | 62.05 | 32.968 E | -1.430 D | 26.547 | 1440.8 |
| 63.0 | 63.10 | 32.999 E | -1.454 D | 26.574 | 1440.8 |
| 64.0 | 64.20 | 33.015 E | -1.421 D | 26.586 | 1441.0 |

| DEPTH | PRESS | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| 65.0 | 65.15 | 33.041 | E | -1.407 | D | 26.606 | 1441.1 |
| 66.0 | 66.20 | 33.069 | E | -1.420 | D | 26.630 | 1441.1 |
| 67.0 | 67.15 | 33.109 | E | -1.414 | D | 26.662 | 1441.2 |
| 68.0 | 68.20 | 33.134 | E | -1.386 | D | 26.681 | 1441.4 |
| 69.0 | 69.20 | 33.166 | E | -1.397 | D | 26.707 | 1441.4 |
| 70.0 | 70.20 | 33.185 | E | -1.400 | D | 26.723 | 1441.4 |
| 71.0 | 71.30 | 33.201 | E | -1.348 | D | 26.734 | 1441.7 |
| 72.0 | 72.10 | 33.235 | E | -1.341 | D | 26.762 | 1441.8 |
| 73.0 | 73.35 | 33.258 | E | -1.330 | D | 26.780 | 1441.9 |
| 74.0 | 74.15 | 33.279 | E | -1.320 | D | 26.796 | 1442.0 |
| 75.0 | 75.25 | 33.307 | E | -1.301 | D | 26.819 | 1442.1 |
| 76.0 | 76.20 | 33.332 | E | -1.300 | D | 26.839 | 1442.2 |
| 77.0 | 77.10 | 33.360 | E | -1.313 | D | 26.862 | 1442.2 |
| 78.0 | 78.40 | 33.389 | E | -1.288 | D | 26.885 | 1442.3 |
| 79.0 | 79.30 | 33.409 | E | -1.292 | D | 26.902 | 1442.4 |
| 80.0 | 80.30 | 33.428 | E | -1.288 | D | 26.916 | 1442.4 |
| 81.0 | 81.20 | 33.447 | E | -1.283 | D | 26.932 | 1442.5 |
| 82.0 | 82.25 | 33.452 | E | -1.241 | D | 26.935 | 1442.7 |
| 83.0 | 83.30 | 33.482 | E | -1.217 | D | 26.958 | 1442.9 |
| 84.0 | 84.25 | 33.502 | E | -1.244 | D | 26.975 | 1442.8 |
| 85.0 | 85.40 | 33.518 | E | -1.234 | D | 26.988 | 1442.9 |
| 86.0 | 86.35 | 33.534 | E | -1.213 | D | 27.000 | 1443.0 |
| 87.0 | 87.35 | 33.548 | E | -1.195 | D | 27.011 | 1443.2 |
| 88.0 | 88.45 | 33.566 | E | -1.146 | D | 27.024 | 1443.4 |
| 89.0 | 89.40 | 33.586 | E | -1.123 | D | 27.039 | 1443.6 |
| 90.0 | 90.40 | 33.602 | E | -1.119 | D | 27.053 | 1443.6 |
| 91.0 | 91.55 | 33.620 | E | -1.089 | D | 27.066 | 1443.8 |
| 92.0 | 92.25 | 33.635 | E | -1.078 | D | 27.077 | 1443.9 |
| 93.0 | 93.45 | 33.647 | E | -1.055 | D | 27.086 | 1444.1 |
| 94.0 | 94.40 | 33.654 | E | -1.035 | D | 27.092 | 1444.2 |
| 95.0 | 95.45 | 33.671 | E | -1.016 | D | 27.104 | 1444.3 |
| 96.0 | 96.45 | 33.683 | E | -0.995 | D | 27.114 | 1444.4 |
| 97.0 | 97.40 | 33.699 | E | -0.974 | D | 27.125 | 1444.6 |
| 98.0 | 98.45 | 33.709 | E | -0.963 | D | 27.134 | 1444.7 |
| 99.0 | 99.55 | 33.720 | E | -0.951 | D | 27.142 | 1444.7 |
| 100.0 | 100.55 | 33.731 | D | -0.933 | C | 27.150 | 1444.9 |
| 101.0 | 101.35 | 33.741 | D | -0.902 | C | 27.158 | 1445.0 |
| 102.0 | 102.50 | 33.753 | D | -0.886 | C | 27.167 | 1445.1 |
| 103.0 | 103.30 | 33.766 | D | -0.873 | C | 27.177 | 1445.2 |
| 104.0 | 104.60 | 33.779 | D | -0.859 | C | 27.187 | 1445.3 |
| 105.0 | 105.40 | 33.791 | D | -0.851 | C | 27.196 | 1445.4 |
| 106.0 | 106.60 | 33.798 | D | -0.838 | C | 27.201 | 1445.5 |
| 107.0 | 107.40 | 33.811 | D | -0.828 | C | 27.211 | 1445.6 |
| 108.0 | 108.60 | 33.822 | D | -0.816 | C | 27.219 | 1445.7 |
| 109.0 | 109.45 | 33.832 | D | -0.808 | C | 27.228 | 1445.7 |
| 110.0 | 110.60 | 33.838 | D | -0.799 | C | 27.232 | 1445.8 |
| 111.0 | 111.50 | 33.848 | D | -0.793 | C | 27.240 | 1445.9 |
| 112.0 | 112.60 | 33.857 | D | -0.786 | C | 27.247 | 1445.9 |
| 113.0 | 113.50 | 33.866 | D | -0.780 | C | 27.254 | 1446.0 |
| 114.0 | 114.60 | 33.872 | D | -0.773 | C | 27.258 | 1446.0 |
| 115.0 | 115.60 | 33.879 | D | -0.766 | C | 27.264 | 1446.1 |
| 116.0 | 116.65 | 33.885 | D | -0.759 | C | 27.269 | 1446.1 |
| 117.0 | 117.60 | 33.894 | D | -0.754 | C | 27.275 | 1446.2 |
| 118.0 | 118.65 | 33.899 | D | -0.745 | C | 27.279 | 1446.3 |
| 119.0 | 119.70 | 33.908 | D | -0.741 | C | 27.287 | 1446.3 |
| 120.0 | 120.60 | 33.915 | D | -0.732 | C | 27.292 | 1446.4 |
| 121.0 | 121.70 | 33.928 | D | -0.727 | C | 27.302 | 1446.4 |
| 122.0 | 122.70 | 33.933 | D | -0.718 | C | 27.306 | 1446.5 |
| 123.0 | 123.70 | 33.941 | D | -0.713 | C | 27.312 | 1446.6 |
| 124.0 | 124.75 | 33.946 | D | -0.707 | C | 27.316 | 1446.6 |
| 125.0 | 125.80 | 33.952 | D | -0.703 | C | 27.321 | 1446.7 |
| 126.0 | 126.65 | 33.961 | D | -0.697 | C | 27.327 | 1446.7 |
| 127.0 | 127.85 | 33.968 | D | -0.691 | C | 27.333 | 1446.8 |
| 128.0 | 128.80 | 33.973 | D | -0.684 | C | 27.336 | 1446.8 |
| 129.0 | 129.90 | 33.980 | D | -0.681 | C | 27.342 | 1446.9 |
| 130.0 | 130.70 | 33.985 | D | -0.675 | C | 27.346 | 1446.9 |
| 131.0 | 131.85 | 33.993 | D | -0.669 | C | 27.352 | 1447.0 |
| 132.0 | 132.55 | 34.002 | D | -0.664 | C | 27.359 | 1447.0 |
| 133.0 | 133.85 | 34.009 | D | -0.658 | C | 27.365 | 1447.1 |

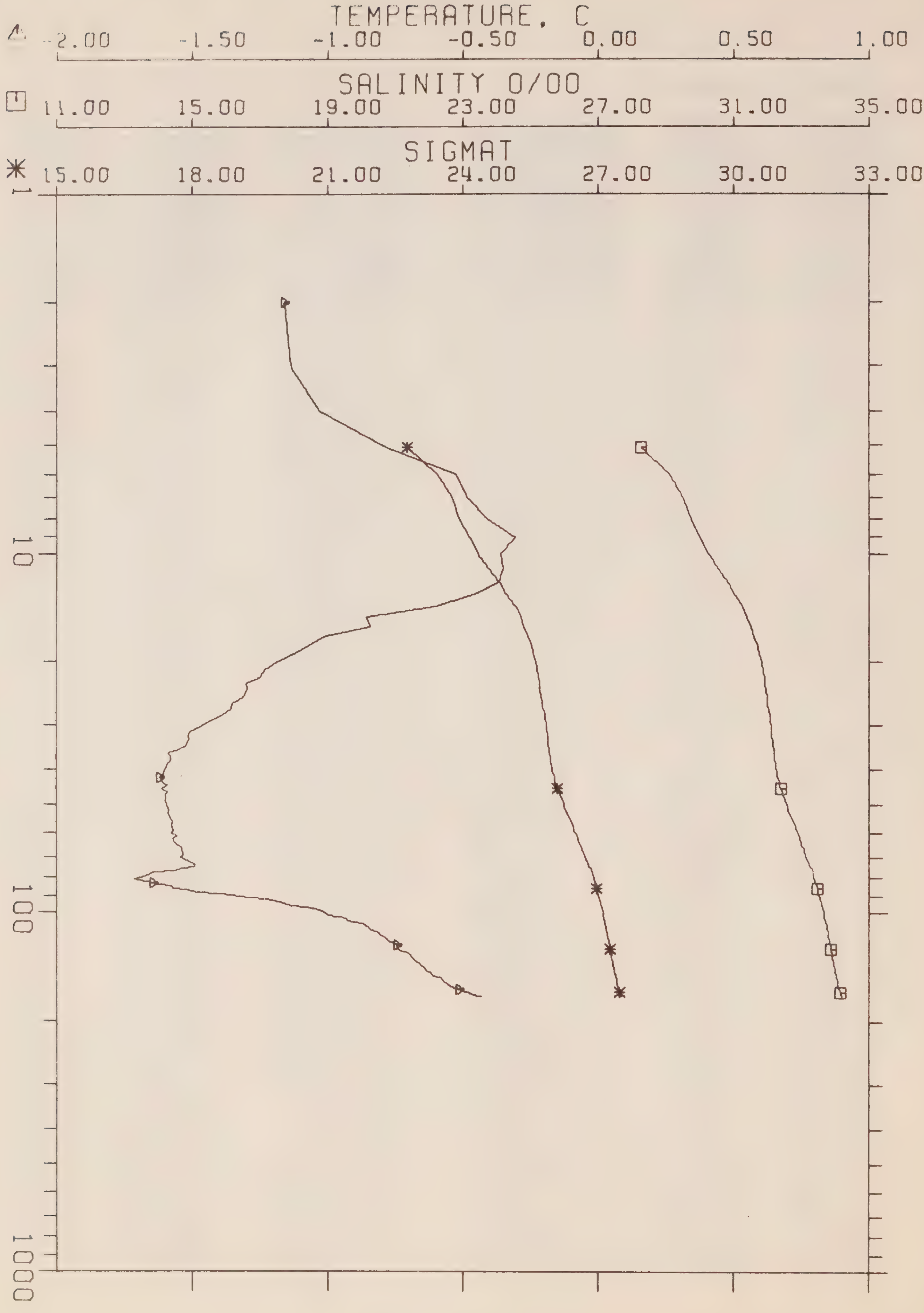
| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 134.0 | 134.60 | 34.015 D | -0.652 C | 27.369 | 1447.1 |
| 135.0 | 135.85 | 34.020 D | -0.646 C | 27.373 | 1447.2 |
| 136.0 | 136.65 | 34.029 D | -0.639 C | 27.380 | 1447.2 |
| 137.0 | 137.90 | 34.034 D | -0.630 C | 27.384 | 1447.3 |
| 138.0 | 138.70 | 34.043 D | -0.625 C | 27.391 | 1447.4 |
| 139.0 | 139.85 | 34.050 D | -0.619 C | 27.396 | 1447.4 |
| 140.0 | 140.70 | 34.057 D | -0.613 C | 27.402 | 1447.5 |
| 141.0 | 141.85 | 34.065 D | -0.609 C | 27.408 | 1447.5 |
| 142.0 | 143.00 | 34.068 D | -0.602 C | 27.410 | 1447.6 |
| 143.0 | 143.85 | 34.074 D | -0.598 C | 27.415 | 1447.6 |
| 144.0 | 144.90 | 34.082 D | -0.594 C | 27.421 | 1447.7 |
| 145.0 | 145.90 | 34.085 D | -0.588 C | 27.423 | 1447.7 |
| 146.0 | 146.95 | 34.090 D | -0.585 C | 27.427 | 1447.7 |
| 147.0 | 147.85 | 34.096 D | -0.581 C | 27.432 | 1447.8 |
| 148.0 | 149.05 | 34.103 D | -0.575 C | 27.438 | 1447.8 |
| 149.0 | 149.95 | 34.107 D | -0.568 C | 27.440 | 1447.9 |
| 150.0 | 150.90 | 34.114 D | -0.560 C | 27.446 | 1448.0 |
| 151.0 | 151.85 | 34.124 D | -0.554 C | 27.454 | 1448.0 |
| 152.0 | 152.75 | 34.132 D | -0.548 C | 27.459 | 1448.1 |
| 153.0 | 153.95 | 34.138 D | -0.539 C | 27.464 | 1448.1 |
| 154.0 | 154.80 | 34.146 D | -0.532 C | 27.470 | 1448.2 |
| 155.0 | 155.90 | 34.156 D | -0.525 C | 27.478 | 1448.3 |
| 156.0 | 156.75 | 34.162 D | -0.517 C | 27.483 | 1448.3 |
| 157.0 | 157.90 | 34.171 D | -0.509 C | 27.490 | 1448.4 |
| 158.0 | 158.95 | 34.182 D | -0.501 C | 27.498 | 1448.5 |
| 159.0 | 159.90 | 34.190 D | -0.492 C | 27.504 | 1448.5 |
| 160.0 | 160.90 | 34.200 D | -0.483 C | 27.511 | 1448.6 |
| 161.0 | 161.85 | 34.207 D | -0.477 C | 27.517 | 1448.6 |
| 162.0 | 162.80 | 34.215 D | -0.470 C | 27.524 | 1448.7 |
| 163.0 | 163.90 | 34.223 D | -0.461 C | 27.530 | 1448.8 |
| 164.0 | 164.80 | 34.232 D | -0.455 C | 27.537 | 1448.8 |
| 165.0 | 165.95 | 34.239 D | -0.445 C | 27.542 | 1448.9 |
| 166.0 | 167.10 | 34.249 D | -0.437 C | 27.550 | 1449.0 |
| 167.0 | 167.95 | 34.260 D | -0.429 C | 27.558 | 1449.0 |
| 168.0 | 169.00 | 34.269 D | -0.421 C | 27.565 | 1449.1 |
| 169.0 | 169.95 | 34.277 D | -0.412 C | 27.571 | 1449.2 |
| 170.0 | 170.90 | 34.289 D | -0.405 C | 27.580 | 1449.2 |
| 171.0 | 172.15 | 34.297 D | -0.396 C | 27.586 | 1449.3 |
| 172.0 | 173.05 | 34.302 D | -0.386 C | 27.590 | 1449.4 |
| 173.0 | 174.10 | 34.312 D | -0.379 C | 27.598 | 1449.4 |
| 174.0 | 175.10 | 34.320 D | -0.370 C | 27.604 | 1449.5 |
| 175.0 | 176.20 | 34.331 D | -0.360 C | 27.613 | 1449.6 |
| 176.0 | 177.05 | 34.341 D | -0.351 C | 27.620 | 1449.7 |
| 177.0 | 178.05 | 34.349 D | -0.342 C | 27.626 | 1449.7 |
| 178.0 | 179.25 | 34.356 D | -0.334 C | 27.632 | 1449.8 |
| 179.0 | 180.15 | 34.363 D | -0.324 C | 27.637 | 1449.9 |
| 180.0 | 181.20 | 34.374 D | -0.316 C | 27.645 | 1449.9 |
| 181.0 | 182.10 | 34.386 D | -0.308 C | 27.654 | 1450.0 |
| 182.0 | 183.25 | 34.391 D | -0.299 C | 27.658 | 1450.1 |
| 183.0 | 184.10 | 34.399 D | -0.293 C | 27.664 | 1450.1 |
| 184.0 | 185.25 | 34.401 D | -0.285 C | 27.665 | 1450.2 |
| 185.0 | 186.10 | 34.410 D | -0.277 C | 27.672 | 1450.2 |
| 186.0 | 187.20 | 34.420 D | -0.270 C | 27.680 | 1450.3 |
| 187.0 | 188.25 | 34.428 D | -0.261 C | 27.686 | 1450.4 |
| 188.0 | 189.25 | 34.434 D | -0.255 C | 27.690 | 1450.4 |
| 189.0 | 190.35 | 34.439 D | -0.248 C | 27.695 | 1450.5 |
| 190.0 | 191.15 | 34.443 D | -0.243 C | 27.697 | 1450.5 |
| 191.0 | 192.30 | 34.450 D | -0.239 C | 27.702 | 1450.6 |
| 192.0 | 193.30 | 34.457 D | -0.233 C | 27.708 | 1450.6 |
| 193.0 | 194.45 | 34.460 D | -0.223 C | 27.710 | 1450.7 |
| 194.0 | 195.50 | 34.466 D | -0.215 C | 27.715 | 1450.8 |
| 195.0 | 196.40 | 34.473 D | -0.209 C | 27.720 | 1450.8 |
| 196.0 | 197.45 | 34.478 D | -0.202 C | 27.723 | 1450.9 |
| 197.0 | 198.35 | 34.491 D | -0.196 C | 27.733 | 1450.9 |
| 198.0 | 199.40 | 34.484 D | -0.192 C | 27.728 | 1451.0 |
| 199.0 | 200.45 | 34.488 D | -0.187 C | 27.731 | 1451.0 |
| 200.0 | 201.30 | 34.501 D | -0.184 C | 27.741 | 1451.1 |
| 201.0 | 202.45 | 34.506 D | -0.178 C | 27.745 | 1451.1 |
| 202.0 | 203.35 | 34.509 D | -0.173 C | 27.747 | 1451.1 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 203.0 | 204.45 | 34.513 D | -0.167 C | 27.750 | 1451.2 |
| 204.0 | 205.45 | 34.520 D | -0.161 C | 27.755 | 1451.3 |
| 205.0 | 206.35 | 34.524 D | -0.158 C | 27.759 | 1451.3 |
| 206.0 | 207.55 | 34.530 D | -0.153 C | 27.763 | 1451.3 |
| 207.0 | 208.45 | 34.533 D | -0.150 C | 27.765 | 1451.4 |
| 208.0 | 209.50 | 34.536 D | -0.147 C | 27.768 | 1451.4 |
| 209.0 | 210.60 | 34.538 D | -0.143 C | 27.769 | 1451.4 |
| 210.0 | 211.40 | 34.541 D | -0.140 C | 27.772 | 1451.5 |
| 211.0 | 212.50 | 34.544 D | -0.137 C | 27.774 | 1451.5 |
| 212.0 | 213.45 | 34.546 D | -0.134 C | 27.775 | 1451.5 |
| 213.0 | 214.55 | 34.549 D | -0.133 C | 27.777 | 1451.6 |
| 214.0 | 215.65 | 34.550 D | -0.131 C | 27.778 | 1451.6 |
| 215.0 | 216.40 | 34.551 D | -0.130 C | 27.779 | 1451.6 |
| 216.0 | 217.55 | 34.553 D | -0.128 C | 27.780 | 1451.6 |
| 217.0 | 218.50 | 34.554 D | -0.126 C | 27.781 | 1451.7 |
| 218.0 | 219.50 | 34.554 D | -0.123 C | 27.781 | 1451.7 |
| 219.0 | 220.65 | 34.556 D | -0.120 C | 27.783 | 1451.7 |
| 220.0 | 221.65 | 34.559 D | -0.118 C | 27.785 | 1451.8 |
| 221.0 | 222.65 | 34.563 D | -0.118 C | 27.788 | 1451.8 |
| 222.0 | 223.75 | 34.563 D | -0.115 C | 27.788 | 1451.8 |
| 223.0 | 224.50 | 34.564 D | -0.113 C | 27.789 | 1451.8 |
| 224.0 | 225.60 | 34.566 D | -0.110 C | 27.790 | 1451.9 |
| 225.0 | 226.75 | 34.567 D | -0.109 C | 27.791 | 1451.9 |
| 226.0 | 227.65 | 34.566 D | -0.106 C | 27.790 | 1451.9 |
| 227.0 | 228.70 | 34.571 D | -0.107 C | 27.794 | 1452.0 |
| 228.0 | 229.60 | 34.574 D | -0.105 C | 27.796 | 1452.0 |
| 229.0 | 230.55 | 34.575 D | -0.103 C | 27.797 | 1452.0 |
| 230.0 | 231.80 | 34.576 D | -0.102 C | 27.798 | 1452.0 |
| 231.0 | 232.70 | 34.575 D | -0.099 C | 27.797 | 1452.1 |
| 232.0 | 233.80 | 34.576 D | -0.098 C | 27.798 | 1452.1 |
| 233.0 | 234.85 | 34.580 D | -0.098 C | 27.801 | 1452.1 |
| 234.0 | 235.85 | 34.580 D | -0.096 C | 27.801 | 1452.1 |
| 235.0 | 236.75 | 34.582 D | -0.096 C | 27.803 | 1452.2 |
| 236.0 | 237.95 | 34.580 D | -0.093 C | 27.800 | 1452.2 |
| 237.0 | 239.00 | 34.583 D | -0.093 C | 27.803 | 1452.2 |
| 238.0 | 239.90 | 34.583 D | -0.091 C | 27.803 | 1452.2 |
| 239.0 | 240.95 | 34.587 D | -0.091 C | 27.806 | 1452.3 |
| 240.0 | 241.95 | 34.586 D | -0.088 C | 27.805 | 1452.3 |
| 241.0 | 243.00 | 34.587 D | -0.087 C | 27.806 | 1452.3 |
| 242.0 | 243.80 | 34.591 D | -0.087 C | 27.809 | 1452.3 |
| 243.0 | 245.00 | 34.590 D | -0.086 C | 27.809 | 1452.3 |
| 244.0 | 245.90 | 34.592 D | -0.084 C | 27.810 | 1452.4 |
| 245.0 | 246.95 | 34.596 D | -0.084 C | 27.813 | 1452.4 |
| 246.0 | 248.10 | 34.593 D | -0.081 C | 27.810 | 1452.4 |
| 247.0 | 248.95 | 34.595 D | -0.079 C | 27.812 | 1452.4 |
| 248.0 | 250.10 | 34.597 D | -0.079 C | 27.813 | 1452.5 |
| 249.0 | 250.95 | 34.599 D | -0.079 C | 27.815 | 1452.5 |
| 250.0 | 252.10 | 34.600 D | -0.077 C | 27.816 | 1452.5 |
| 251.0 | 253.10 | 34.599 D | -0.075 C | 27.815 | 1452.5 |
| 252.0 | 254.10 | 34.600 D | -0.073 C | 27.816 | 1452.6 |
| 253.0 | 255.10 | 34.603 D | -0.072 C | 27.818 | 1452.6 |
| 254.0 | 256.00 | 34.603 D | -0.071 C | 27.818 | 1452.6 |
| 255.0 | 257.15 | 34.604 D | -0.070 C | 27.819 | 1452.6 |
| 256.0 | 258.30 | 34.605 D | -0.069 C | 27.819 | 1452.7 |
| 257.0 | 259.20 | 34.607 D | -0.069 C | 27.821 | 1452.7 |
| 258.0 | 260.35 | 34.608 D | -0.068 C | 27.822 | 1452.7 |
| 259.0 | 261.20 | 34.611 D | -0.068 C | 27.824 | 1452.7 |
| 260.0 | 262.30 | 34.609 D | -0.066 C | 27.823 | 1452.7 |
| 261.0 | 263.35 | 34.610 D | -0.065 C | 27.824 | 1452.8 |
| 262.0 | 264.30 | 34.610 D | -0.063 C | 27.824 | 1452.8 |
| 263.0 | 265.35 | 34.613 D | -0.063 C | 27.825 | 1452.8 |
| 264.0 | 266.20 | 34.616 D | -0.064 C | 27.828 | 1452.8 |
| 265.0 | 267.35 | 34.613 D | -0.061 C | 27.826 | 1452.9 |
| 266.0 | 268.35 | 34.613 D | -0.059 C | 27.826 | 1452.9 |
| 267.0 | 269.30 | 34.613 D | -0.058 C | 27.826 | 1452.9 |
| 268.0 | 270.40 | 34.615 D | -0.058 C | 27.827 | 1452.9 |
| 269.0 | 271.25 | 34.614 D | -0.056 C | 27.826 | 1452.9 |
| 270.0 | 272.45 | 34.616 D | -0.056 C | 27.828 | 1453.0 |
| 271.0 | 273.55 | 34.617 D | -0.056 C | 27.829 | 1453.0 |

| DEPTH | PRESS | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| 272.0 | 274.50 | 34.617 | D | -0.055 | C | 27.828 | 1453.0 |
| 273.0 | 275.50 | 34.618 | D | -0.054 | C | 27.829 | 1453.0 |
| 274.0 | 276.50 | 34.619 | D | -0.054 | C | 27.830 | 1453.0 |
| 275.0 | 277.40 | 34.620 | D | -0.054 | C | 27.831 | 1453.1 |
| 276.0 | 278.50 | 34.622 | D | -0.054 | C | 27.832 | 1453.1 |
| 277.0 | 279.40 | 34.622 | D | -0.053 | C | 27.832 | 1453.1 |
| 278.0 | 280.45 | 34.620 | D | -0.051 | C | 27.831 | 1453.1 |
| 279.0 | 281.55 | 34.621 | D | -0.050 | C | 27.832 | 1453.2 |
| 280.0 | 282.40 | 34.621 | D | -0.049 | C | 27.831 | 1453.2 |
| 281.0 | 283.55 | 34.623 | D | -0.049 | C | 27.833 | 1453.2 |
| 282.0 | 284.45 | 34.623 | D | -0.047 | C | 27.833 | 1453.2 |
| 283.0 | 285.65 | 34.623 | D | -0.046 | C | 27.833 | 1453.2 |
| 284.0 | 286.65 | 34.624 | D | -0.046 | C | 27.833 | 1453.3 |
| 285.0 | 287.50 | 34.624 | D | -0.044 | C | 27.833 | 1453.3 |
| 286.0 | 288.70 | 34.623 | D | -0.043 | C | 27.833 | 1453.3 |
| 287.0 | 289.60 | 34.624 | D | -0.043 | C | 27.834 | 1453.3 |
| 288.0 | 290.35 | 34.624 | D | -0.042 | C | 27.834 | 1453.3 |
| 289.0 | 291.30 | 34.625 | D | -0.042 | C | 27.834 | 1453.4 |
| 290.0 | 292.40 | 34.623 | D | -0.040 | C | 27.833 | 1453.4 |
| 291.0 | 293.35 | 34.625 | D | -0.041 | C | 27.835 | 1453.4 |
| 292.0 | 294.35 | 34.626 | D | -0.041 | C | 27.835 | 1453.4 |
| 293.0 | 295.50 | 34.627 | D | -0.041 | C | 27.836 | 1453.4 |
| 294.0 | 296.40 | 34.626 | D | -0.039 | C | 27.835 | 1453.5 |
| 295.0 | 297.40 | 34.628 | D | -0.040 | C | 27.836 | 1453.5 |
| 296.0 | 298.50 | 34.627 | D | -0.039 | C | 27.836 | 1453.5 |
| 297.0 | 299.60 | 34.627 | D | -0.038 | C | 27.836 | 1453.5 |
| 298.0 | 300.35 | 34.629 | D | -0.038 | C | 27.838 | 1453.5 |
| 299.0 | 301.55 | 34.626 | D | -0.036 | C | 27.835 | 1453.6 |
| 300.0 | 302.50 | 34.629 | D | -0.036 | C | 27.837 | 1453.6 |
| 301.0 | 303.50 | 34.628 | D | -0.035 | C | 27.837 | 1453.6 |
| 302.0 | 304.55 | 34.629 | D | -0.035 | C | 27.837 | 1453.6 |
| 303.0 | 305.55 | 34.630 | D | -0.034 | C | 27.838 | 1453.6 |
| 304.0 | 306.40 | 34.631 | D | -0.034 | C | 27.839 | 1453.6 |
| 305.0 | 307.50 | 34.631 | D | -0.034 | C | 27.839 | 1453.7 |
| 306.0 | 308.55 | 34.630 | D | -0.033 | C | 27.838 | 1453.7 |
| 307.0 | 309.50 | 34.631 | D | -0.033 | C | 27.839 | 1453.7 |
| 308.0 | 310.65 | 34.630 | D | -0.031 | C | 27.838 | 1453.7 |
| 309.0 | 311.65 | 34.629 | D | -0.030 | C | 27.837 | 1453.7 |
| 310.0 | 312.60 | 34.632 | D | -0.030 | C | 27.839 | 1453.8 |
| 311.0 | 313.70 | 34.629 | D | -0.029 | C | 27.837 | 1453.8 |
| 312.0 | 314.75 | 34.632 | D | -0.030 | C | 27.839 | 1453.8 |
| 313.0 | 315.50 | 34.632 | D | -0.029 | C | 27.839 | 1453.8 |
| 314.0 | 316.70 | 34.631 | D | -0.028 | C | 27.839 | 1453.8 |
| 315.0 | 317.70 | 34.632 | D | -0.027 | C | 27.840 | 1453.9 |
| 316.0 | 318.55 | 34.633 | D | -0.027 | C | 27.840 | 1453.9 |
| 317.0 | 319.65 | 34.633 | D | -0.027 | C | 27.840 | 1453.9 |
| 318.0 | 320.80 | 34.634 | D | -0.026 | C | 27.841 | 1453.9 |
| 319.0 | 321.85 | 34.632 | D | -0.026 | C | 27.839 | 1453.9 |
| 320.0 | 322.65 | 34.632 | D | -0.025 | C | 27.839 | 1454.0 |
| 321.0 | 323.65 | 34.633 | D | -0.024 | C | 27.840 | 1454.0 |
| 322.0 | 324.80 | 34.632 | D | -0.024 | C | 27.839 | 1454.0 |
| 323.0 | 325.90 | 34.634 | D | -0.024 | C | 27.841 | 1454.0 |
| 324.0 | 326.85 | 34.634 | D | -0.023 | C | 27.841 | 1454.0 |
| 325.0 | 327.70 | 34.633 | D | -0.023 | C | 27.840 | 1454.0 |
| 326.0 | 328.80 | 34.633 | D | -0.022 | C | 27.840 | 1454.1 |
| 327.0 | 329.75 | 34.635 | D | -0.023 | C | 27.842 | 1454.1 |
| 328.0 | 330.80 | 34.636 | D | -0.023 | C | 27.842 | 1454.1 |
| 329.0 | 331.95 | 34.635 | D | -0.023 | C | 27.842 | 1454.1 |
| 330.0 | 332.95 | 34.633 | D | -0.020 | C | 27.839 | 1454.1 |
| 331.0 | 333.95 | 34.636 | D | -0.022 | C | 27.842 | 1454.2 |
| 332.0 | 335.00 | 34.637 | D | -0.022 | C | 27.843 | 1454.2 |
| 333.0 | 335.95 | 34.634 | D | -0.020 | C | 27.840 | 1454.2 |
| 334.0 | 336.85 | 34.636 | D | -0.021 | C | 27.842 | 1454.2 |
| 335.0 | 338.00 | 34.638 | D | -0.022 | C | 27.844 | 1454.2 |
| 336.0 | 338.95 | 34.633 | D | -0.018 | C | 27.839 | 1454.3 |
| 337.0 | 339.90 | 34.635 | D | -0.018 | C | 27.841 | 1454.3 |
| 338.0 | 341.10 | 34.636 | D | -0.017 | C | 27.842 | 1454.3 |
| 339.0 | 342.10 | 34.633 | D | -0.015 | C | 27.840 | 1454.3 |
| 340.0 | 343.10 | 34.634 | D | -0.015 | C | 27.840 | 1454.3 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 341.0 | 344.10 | 34.635 D | -0.016 C | 27.841 | 1454.4 |
| 342.0 | 345.05 | 34.634 D | -0.015 C | 27.840 | 1454.4 |
| 343.0 | 346.05 | 34.637 D | -0.015 C | 27.842 | 1454.4 |
| 344.0 | 347.05 | 34.637 D | -0.015 C | 27.843 | 1454.4 |
| 345.0 | 348.05 | 34.636 D | -0.013 C | 27.842 | 1454.4 |
| 346.0 | 349.10 | 34.634 D | -0.012 C | 27.840 | 1454.5 |
| 347.0 | 350.15 | 34.635 D | -0.012 C | 27.841 | 1454.5 |
| 348.0 | 351.20 | 34.636 D | -0.013 C | 27.841 | 1454.5 |
| 349.0 | 352.20 | 34.634 D | -0.012 C | 27.840 | 1454.5 |
| 350.0 | 353.20 | 34.635 D | -0.011 C | 27.841 | 1454.5 |
| 351.0 | 354.10 | 34.636 D | -0.011 C | 27.842 | 1454.5 |
| 352.0 | 355.05 | 34.635 D | -0.011 C | 27.841 | 1454.6 |
| 353.0 | 356.10 | 34.634 D | -0.010 C | 27.840 | 1454.6 |
| 354.0 | 357.10 | 34.636 D | -0.011 C | 27.841 | 1454.6 |
| 355.0 | 358.15 | 34.635 D | -0.010 C | 27.841 | 1454.6 |
| 356.0 | 359.15 | 34.637 D | -0.011 C | 27.843 | 1454.6 |
| 357.0 | 360.25 | 34.635 D | -0.010 C | 27.841 | 1454.6 |
| 358.0 | 361.30 | 34.631 D | -0.007 C | 27.838 | 1454.7 |
| 359.0 | 362.35 | 34.636 D | -0.010 C | 27.841 | 1454.7 |
| 360.0 | 363.35 | 34.638 D | -0.011 C | 27.843 | 1454.7 |
| 361.0 | 364.35 | 34.636 D | -0.009 C | 27.842 | 1454.7 |
| 362.0 | 365.30 | 34.637 D | -0.009 C | 27.842 | 1454.7 |
| 363.0 | 366.30 | 34.634 D | -0.007 C | 27.840 | 1454.8 |
| 364.0 | 367.40 | 34.635 D | -0.007 C | 27.841 | 1454.8 |
| 365.0 | 368.45 | 34.636 D | -0.007 C | 27.841 | 1454.8 |
| 366.0 | 369.40 | 34.638 D | -0.008 C | 27.843 | 1454.8 |
| 367.0 | 370.45 | 34.635 D | -0.006 C | 27.841 | 1454.8 |
| 368.0 | 371.45 | 34.638 D | -0.008 C | 27.843 | 1454.8 |
| 369.0 | 372.35 | 34.636 D | -0.007 C | 27.842 | 1454.9 |
| 370.0 | 373.35 | 34.635 D | -0.005 C | 27.840 | 1454.9 |
| 371.0 | 374.50 | 34.637 D | -0.007 C | 27.842 | 1454.9 |
| 372.0 | 375.40 | 34.635 D | -0.006 C | 27.840 | 1454.9 |
| 373.0 | 376.50 | 34.637 D | -0.007 C | 27.842 | 1454.9 |
| 374.0 | 377.55 | 34.635 D | -0.005 C | 27.841 | 1455.0 |
| 375.0 | 378.55 | 34.637 D | -0.006 C | 27.842 | 1455.0 |
| 376.0 | 379.40 | 34.638 D | -0.007 C | 27.843 | 1455.0 |
| 377.0 | 380.45 | 34.635 D | -0.005 C | 27.841 | 1455.0 |
| 378.0 | 381.60 | 34.636 D | -0.005 C | 27.841 | 1455.0 |
| 379.0 | 382.65 | 34.636 D | -0.006 C | 27.842 | 1455.0 |
| 380.0 | 383.65 | 34.636 D | -0.005 C | 27.841 | 1455.1 |
| 381.0 | 384.50 | 34.637 D | -0.005 C | 27.842 | 1455.1 |
| 382.0 | 385.50 | 34.634 D | -0.003 C | 27.840 | 1455.1 |
| 383.0 | 386.65 | 34.636 D | -0.004 C | 27.841 | 1455.1 |
| 384.0 | 387.75 | 34.637 D | -0.004 C | 27.842 | 1455.1 |
| 385.0 | 388.60 | 34.634 D | -0.003 C | 27.839 | 1455.1 |
| 386.0 | 389.65 | 34.636 D | -0.003 C | 27.841 | 1455.2 |
| 387.0 | 390.65 | 34.634 D | -0.002 C | 27.840 | 1455.2 |
| 388.0 | 391.65 | 34.637 D | -0.002 C | 27.842 | 1455.2 |
| 389.0 | 392.75 | 34.638 D | -0.004 C | 27.843 | 1455.2 |
| 390.0 | 393.65 | 34.635 D | -0.002 C | 27.841 | 1455.2 |
| 391.0 | 394.70 | 34.636 D | -0.002 C | 27.841 | 1455.3 |
| 392.0 | 395.80 | 34.637 D | -0.003 C | 27.842 | 1455.3 |
| 393.0 | 396.60 | 34.637 D | -0.002 C | 27.842 | 1455.3 |
| 394.0 | 397.75 | 34.636 D | -0.002 C | 27.841 | 1455.3 |
| 395.0 | 398.70 | 34.636 D | -0.001 C | 27.841 | 1455.3 |
| 396.0 | 399.75 | 34.635 D | -0.001 C | 27.840 | 1455.3 |
| 397.0 | 400.75 | 34.637 D | -0.002 C | 27.842 | 1455.4 |
| 398.0 | 401.80 | 34.635 D | -0.001 C | 27.841 | 1455.4 |
| 399.0 | 402.80 | 34.636 D | -0.001 C | 27.841 | 1455.4 |
| 400.0 | 403.70 | 34.636 D | 0.0 C | 27.841 | 1455.4 |
| 401.0 | 404.90 | 34.638 D | -0.001 C | 27.843 | 1455.4 |
| 402.0 | 405.70 | 34.635 D | 0.0 C | 27.840 | 1455.4 |
| 403.0 | 406.65 | 34.639 D | -0.002 C | 27.844 | 1455.5 |
| 404.0 | 407.80 | 34.639 D | -0.002 C | 27.843 | 1455.5 |
| 405.0 | 408.95 | 34.637 D | 0.0 C | 27.842 | 1455.5 |
| 406.0 | 409.85 | 34.641 D | -0.001 C | 27.845 | 1455.5 |
| 407.0 | 410.70 | 34.636 D | 0.001 C | 27.841 | 1455.5 |
| 408.0 | 411.75 | 34.638 D | 0.0 C | 27.843 | 1455.5 |
| 409.0 | 412.90 | 34.638 D | 0.0 C | 27.842 | 1455.6 |

| DEPTH | PRESS | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| 410.0 | 414.00 | 34.638 | D | 0.0 | C | 27.843 | 1455.6 |
| 411.0 | 414.95 | 34.639 | D | -0.001 | C | 27.844 | 1455.6 |
| 412.0 | 415.80 | 34.637 | D | 0.0 | C | 27.842 | 1455.6 |
| 413.0 | 416.95 | 34.637 | D | 0.0 | C | 27.842 | 1455.6 |
| 414.0 | 417.90 | 34.638 | D | 0.0 | C | 27.842 | 1455.6 |
| 415.0 | 419.05 | 34.638 | D | 0.0 | C | 27.843 | 1455.7 |
| 416.0 | 420.00 | 34.639 | D | 0.0 | C | 27.844 | 1455.7 |
| 417.0 | 420.95 | 34.637 | D | 0.001 | C | 27.842 | 1455.7 |
| 418.0 | 421.85 | 34.638 | D | 0.001 | C | 27.843 | 1455.7 |
| 419.0 | 423.05 | 34.639 | D | 0.001 | C | 27.844 | 1455.7 |
| 420.0 | 424.00 | 34.640 | D | 0.001 | C | 27.844 | 1455.8 |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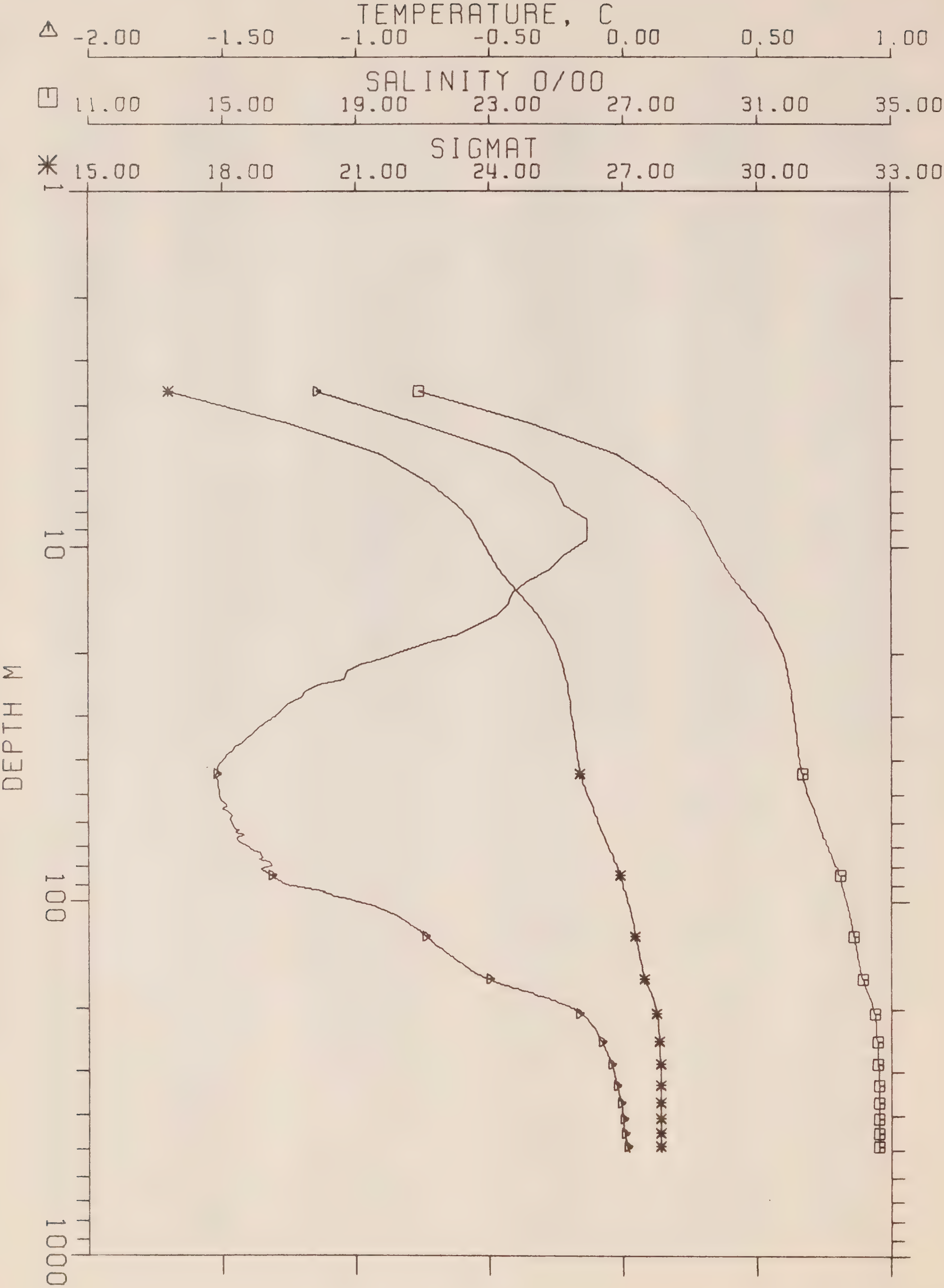
SALINITY 0/00
11.00 15.00 19.00 23.00 27.00 31.00 35.00
SIGMAT
15.00 18.00 21.00 24.00 27.00 30.00 33.00
DEPTH M
1
10
100
1000

| | | |
|---|---|---|
| CRUISE | D'IBERVILLE FIORD-75 | EXPER NO. 1061 |
| LAT N.80-34-00 | LONG W.78-09-00 | WATER DEPTH 170 |
| DEPTH INCR. | DATE 060475 | LOCAL TIME 1325 |

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 2.0 | 2.00 | | -1.159 D | | |
| 3.0 | 3.05 | | -1.137 D | | |
| 4.0 | 4.00 | | -1.028 D | | |
| 5.0 | 5.05 | 28.294 E | -0.785 D | 22.755 | 1436.4 |
| 6.0 | 6.00 | 29.136 E | -0.524 D | 23.428 | 1438.8 |
| 7.0 | 7.00 | 29.538 E | -0.483 D | 23.751 | 1439.6 |
| 8.0 | 8.00 | 29.744 E | -0.411 D | 23.915 | 1440.2 |
| 9.0 | 9.05 | 30.037 E | -0.305 D | 24.148 | 1441.1 |
| 10.0 | 10.05 | 30.279 E | -0.361 D | 24.345 | 1441.2 |
| 11.0 | 11.00 | 30.569 E | -0.350 D | 24.578 | 1441.7 |
| 12.0 | 12.05 | 30.840 E | -0.365 D | 24.797 | 1442.0 |
| 13.0 | 13.05 | 31.040 E | -0.458 D | 24.962 | 1441.9 |
| 14.0 | 14.10 | 31.278 E | -0.601 D | 25.158 | 1441.6 |
| 15.0 | 15.05 | 31.420 E | -0.859 D | 25.280 | 1440.6 |
| 16.0 | 16.05 | 31.514 E | -0.842 D | 25.356 | 1440.8 |
| 17.0 | 17.05 | 31.618 E | -1.008 D | 25.445 | 1440.2 |
| 18.0 | 18.00 | 31.705 E | -1.070 D | 25.517 | 1440.0 |
| 19.0 | 19.00 | 31.769 E | -1.119 D | 25.570 | 1439.9 |
| 20.0 | 20.05 | 31.837 E | -1.183 D | 25.626 | 1439.7 |
| 21.0 | 21.10 | 31.876 E | -1.230 D | 25.659 | 1439.6 |
| 22.0 | 22.10 | 31.903 E | -1.249 D | 25.681 | 1439.5 |
| 23.0 | 23.00 | 31.930 E | -1.298 D | 25.704 | 1439.3 |
| 24.0 | 24.00 | 31.953 E | -1.294 D | 25.723 | 1439.4 |
| 25.0 | 25.10 | 31.988 E | -1.311 D | 25.752 | 1439.4 |
| 26.0 | 26.10 | 32.016 E | -1.348 D | 25.775 | 1439.3 |
| 27.0 | 27.00 | 32.027 E | -1.353 D | 25.784 | 1439.3 |
| 28.0 | 28.10 | 32.065 E | -1.386 D | 25.815 | 1439.2 |
| 29.0 | 29.10 | 32.078 E | -1.427 D | 25.827 | 1439.0 |
| 30.0 | 30.10 | 32.101 E | -1.459 D | 25.846 | 1438.9 |
| 31.0 | 31.00 | 32.124 E | -1.498 D | 25.866 | 1438.8 |
| 32.0 | 32.10 | 32.136 E | -1.517 D | 25.876 | 1438.7 |
| 33.0 | 33.10 | 32.153 E | -1.508 D | 25.890 | 1438.8 |
| 34.0 | 34.05 | 32.168 E | -1.520 D | 25.902 | 1438.8 |
| 35.0 | 35.10 | 32.187 E | -1.547 D | 25.918 | 1438.7 |
| 36.0 | 36.10 | 32.204 E | -1.589 D | 25.932 | 1438.6 |
| 37.0 | 37.15 | 32.217 E | -1.575 D | 25.943 | 1438.7 |
| 38.0 | 38.10 | 32.231 E | -1.585 D | 25.954 | 1438.7 |
| 39.0 | 39.15 | 32.256 E | -1.597 D | 25.975 | 1438.7 |
| 40.0 | 40.10 | 32.279 E | -1.601 D | 25.993 | 1438.7 |
| 41.0 | 41.20 | 32.293 E | -1.608 D | 26.005 | 1438.7 |
| 42.0 | 42.20 | 32.318 E | -1.618 D | 26.025 | 1438.7 |
| 43.0 | 43.30 | 32.342 E | -1.612 D | 26.045 | 1438.8 |
| 44.0 | 44.30 | 32.368 E | -1.592 D | 26.066 | 1438.9 |
| 45.0 | 45.15 | 32.411 E | -1.614 D | 26.101 | 1438.9 |
| 46.0 | 46.10 | 32.436 E | -1.588 D | 26.121 | 1439.1 |
| 47.0 | 47.10 | 32.493 E | -1.600 D | 26.167 | 1439.1 |
| 48.0 | 48.15 | 32.517 E | -1.596 D | 26.186 | 1439.2 |
| 49.0 | 49.20 | 32.555 E | -1.599 D | 26.217 | 1439.2 |
| 50.0 | 50.15 | 32.582 E | -1.597 D | 26.239 | 1439.3 |
| 51.0 | 51.15 | 32.598 E | -1.589 D | 26.252 | 1439.4 |
| 52.0 | 52.10 | 32.647 E | -1.585 D | 26.291 | 1439.5 |
| 53.0 | 53.05 | 32.677 E | -1.588 D | 26.316 | 1439.5 |
| 54.0 | 54.10 | 32.716 E | -1.584 D | 26.347 | 1439.6 |
| 55.0 | 55.15 | 32.756 E | -1.579 D | 26.379 | 1439.7 |
| 56.0 | 56.10 | 32.793 E | -1.572 D | 26.410 | 1439.8 |
| 57.0 | 57.05 | 32.828 E | -1.576 D | 26.438 | 1439.9 |
| 58.0 | 58.10 | 32.844 E | -1.574 D | 26.451 | 1439.9 |
| 59.0 | 59.15 | 32.864 E | -1.569 D | 26.467 | 1440.0 |
| 60.0 | 60.15 | 32.910 E | -1.582 D | 26.504 | 1440.0 |
| 61.0 | 61.10 | 32.944 E | -1.553 D | 26.531 | 1440.2 |
| 62.0 | 62.15 | 32.972 E | -1.569 D | 26.554 | 1440.2 |
| 63.0 | 63.15 | 32.982 E | -1.572 D | 26.563 | 1440.2 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 64.0 | 64.10 | 33.014 F | -1.558 D | 26.598 | 1440.3 |
| 65.0 | 65.15 | 33.059 E | -1.546 D | 26.624 | 1440.5 |
| 66.0 | 66.15 | 33.079 F | -1.534 D | 26.640 | 1440.6 |
| 67.0 | 67.10 | 33.093 F | -1.539 D | 26.652 | 1440.6 |
| 68.0 | 68.15 | 33.121 F | -1.535 D | 26.674 | 1440.6 |
| 69.0 | 69.20 | 33.139 E | -1.536 D | 26.689 | 1440.7 |
| 70.0 | 70.20 | 33.153 F | -1.543 D | 26.700 | 1440.7 |
| 71.0 | 71.25 | 33.198 F | -1.520 D | 26.736 | 1440.9 |
| 72.0 | 72.15 | 33.229 E | -1.500 D | 26.761 | 1441.0 |
| 73.0 | 73.15 | 33.250 F | -1.491 D | 26.778 | 1441.1 |
| 74.0 | 74.20 | 33.271 E | -1.488 D | 26.795 | 1441.2 |
| 75.0 | 75.15 | 33.325 F | -1.537 D | 26.840 | 1441.0 |
| 76.0 | 76.20 | 33.343 E | -1.564 D | 26.855 | 1440.9 |
| 77.0 | 77.20 | 33.369 E | -1.647 D | 26.878 | 1440.6 |
| 78.0 | 78.15 | 33.370 F | -1.662 D | 26.879 | 1440.6 |
| 79.0 | 79.20 | 33.379 E | -1.675 D | 26.887 | 1440.5 |
| 80.0 | 80.25 | 33.392 E | -1.716 D | 26.898 | 1440.4 |
| 81.0 | 81.10 | 33.398 F | -1.697 D | 26.903 | 1440.5 |
| 82.0 | 82.20 | 33.432 E | -1.643 D | 26.929 | 1440.8 |
| 83.0 | 83.15 | 33.435 F | -1.619 D | 26.931 | 1440.9 |
| 84.0 | 84.15 | 33.461 E | -1.582 D | 26.951 | 1441.2 |
| 85.0 | 85.25 | 33.470 F | -1.574 D | 26.958 | 1441.2 |
| 86.0 | 86.15 | 33.481 E | -1.521 D | 26.966 | 1441.5 |
| 87.0 | 87.25 | 33.500 E | -1.478 D | 26.980 | 1441.8 |
| 88.0 | 88.20 | 33.513 F | -1.401 D | 26.988 | 1442.2 |
| 89.0 | 89.20 | 33.532 E | -1.352 D | 27.003 | 1442.4 |
| 90.0 | 90.25 | 33.548 F | -1.329 D | 27.015 | 1442.6 |
| 91.0 | 91.20 | 33.569 E | -1.232 D | 27.029 | 1443.1 |
| 92.0 | 92.25 | 33.587 E | -1.193 D | 27.043 | 1443.3 |
| 93.0 | 93.30 | 33.604 E | -1.182 D | 27.056 | 1443.4 |
| 94.0 | 94.30 | 33.612 E | -1.152 D | 27.061 | 1443.6 |
| 95.0 | 95.25 | 33.624 F | -1.128 D | 27.070 | 1443.7 |
| 96.0 | 96.25 | 33.640 F | -1.078 D | 27.081 | 1444.0 |
| 97.0 | 97.20 | 33.656 E | -1.050 D | 27.094 | 1444.1 |
| 98.0 | 98.30 | 33.665 E | -1.036 D | 27.100 | 1444.2 |
| 99.0 | 99.30 | 33.675 F | -1.012 D | 27.108 | 1444.4 |
| 100.0 | 101.10 | 33.672 D | -1.001 C | 27.105 | 1444.5 |
| 101.0 | 102.10 | 33.691 D | -0.958 C | 27.119 | 1444.7 |
| 102.0 | 103.20 | 33.700 D | -0.937 C | 27.125 | 1444.8 |
| 103.0 | 104.20 | 33.708 D | -0.932 C | 27.132 | 1444.9 |
| 104.0 | 105.15 | 33.718 D | -0.928 C | 27.140 | 1444.9 |
| 105.0 | 106.15 | 33.722 D | -0.898 C | 27.141 | 1445.1 |
| 106.0 | 107.15 | 33.745 D | -0.869 C | 27.160 | 1445.3 |
| 107.0 | 108.15 | 33.752 D | -0.863 C | 27.165 | 1445.3 |
| 108.0 | 109.25 | 33.760 D | -0.851 C | 27.171 | 1445.4 |
| 109.0 | 110.30 | 33.774 D | -0.846 C | 27.182 | 1445.5 |
| 110.0 | 111.30 | 33.781 D | -0.839 C | 27.188 | 1445.5 |
| 111.0 | 112.30 | 33.789 D | -0.827 C | 27.193 | 1445.6 |
| 112.0 | 113.30 | 33.800 D | -0.811 C | 27.202 | 1445.7 |
| 113.0 | 114.30 | 33.806 D | -0.808 C | 27.206 | 1445.8 |
| 114.0 | 115.30 | 33.812 D | -0.800 C | 27.211 | 1445.8 |
| 115.0 | 116.30 | 33.819 D | -0.792 C | 27.216 | 1445.9 |
| 116.0 | 117.30 | 33.828 D | -0.785 C | 27.224 | 1446.0 |
| 117.0 | 118.30 | 33.834 D | -0.780 C | 27.228 | 1446.0 |
| 118.0 | 119.40 | 33.842 D | -0.777 C | 27.234 | 1446.0 |
| 119.0 | 120.35 | 33.846 D | -0.772 C | 27.237 | 1446.1 |
| 120.0 | 120.95 | 33.853 D | -0.764 C | 27.243 | 1446.1 |
| 121.0 | 121.70 | 33.865 D | -0.750 C | 27.252 | 1446.2 |
| 122.0 | 122.55 | 33.870 D | -0.747 C | 27.256 | 1446.3 |
| 123.0 | 123.60 | 33.872 D | -0.745 C | 27.258 | 1446.3 |
| 124.0 | 124.90 | 33.872 D | -0.745 C | 27.258 | 1446.3 |
| 125.0 | 125.90 | 33.880 D | -0.739 C | 27.263 | 1446.4 |
| 126.0 | 126.70 | 33.887 D | -0.731 C | 27.269 | 1446.4 |
| 127.0 | 127.70 | 33.899 D | -0.724 C | 27.278 | 1446.5 |
| 128.0 | 128.60 | 33.908 D | -0.712 C | 27.286 | 1446.6 |
| 129.0 | 129.65 | 33.917 D | -0.703 C | 27.292 | 1446.7 |
| 130.0 | 130.65 | 33.928 D | -0.695 C | 27.301 | 1446.7 |
| 131.0 | 131.40 | 33.930 D | -0.693 C | 27.302 | 1446.8 |
| 132.0 | 132.35 | 33.936 D | -0.688 C | 27.307 | 1446.8 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 133.0 | 133.30 | 33.940 D | -0.686 C | 27.310 | 1446.8 |
| 134.0 | 134.35 | 33.946 D | -0.681 C | 27.315 | 1446.9 |
| 135.0 | 135.35 | 33.946 D | -0.679 C | 27.315 | 1446.9 |
| 136.0 | 136.40 | 33.952 D | -0.674 C | 27.319 | 1447.0 |
| 137.0 | 137.35 | 33.962 D | -0.665 C | 27.327 | 1447.0 |
| 138.0 | 138.40 | 33.968 D | -0.662 C | 27.332 | 1447.1 |
| 139.0 | 139.40 | 33.975 D | -0.656 C | 27.337 | 1447.1 |
| 140.0 | 140.40 | 33.982 D | -0.652 C | 27.343 | 1447.2 |
| 141.0 | 141.45 | 33.982 D | -0.649 C | 27.342 | 1447.2 |
| 142.0 | 142.40 | 33.992 D | -0.642 C | 27.350 | 1447.3 |
| 143.0 | 143.40 | 33.998 D | -0.638 C | 27.355 | 1447.3 |
| 144.0 | 144.45 | 34.003 D | -0.635 C | 27.359 | 1447.3 |
| 145.0 | 145.45 | 34.008 D | -0.629 C | 27.363 | 1447.4 |
| 146.0 | 146.40 | 34.015 D | -0.621 C | 27.368 | 1447.5 |
| 147.0 | 147.40 | 34.020 D | -0.620 C | 27.372 | 1447.5 |
| 148.0 | 148.40 | 34.027 D | -0.614 C | 27.378 | 1447.5 |
| 149.0 | 149.35 | 34.033 D | -0.607 C | 27.382 | 1447.6 |
| 150.0 | 150.45 | 34.045 D | -0.595 C | 27.392 | 1447.7 |
| 151.0 | 151.40 | 34.056 D | -0.585 C | 27.400 | 1447.8 |
| 152.0 | 152.35 | 34.063 D | -0.579 C | 27.405 | 1447.8 |
| 153.0 | 153.40 | 34.068 D | -0.576 C | 27.409 | 1447.9 |
| 154.0 | 154.45 | 34.074 D | -0.572 C | 27.413 | 1447.9 |
| 155.0 | 155.40 | 34.077 D | -0.568 C | 27.416 | 1447.9 |
| 156.0 | 156.40 | 34.083 D | -0.563 C | 27.421 | 1448.0 |
| 157.0 | 157.40 | 34.090 D | -0.555 C | 27.426 | 1448.0 |
| 158.0 | 158.40 | 34.094 D | -0.555 C | 27.429 | 1448.1 |
| 159.0 | 159.40 | 34.096 D | -0.550 C | 27.430 | 1448.1 |
| 160.0 | 160.40 | 34.106 D | -0.540 C | 27.438 | 1448.2 |
| 161.0 | 161.45 | 34.116 D | -0.531 C | 27.446 | 1448.3 |
| 162.0 | 162.45 | 34.130 D | -0.517 C | 27.457 | 1448.4 |
| 163.0 | 163.50 | 34.140 D | -0.509 C | 27.465 | 1448.4 |
| 164.0 | 164.55 | 34.148 D | -0.502 C | 27.471 | 1448.5 |
| 165.0 | 165.60 | 34.157 D | -0.493 C | 27.477 | 1448.6 |
| 166.0 | 166.60 | 34.171 D | -0.480 C | 27.488 | 1448.7 |
| 167.0 | 167.60 | 34.178 D | -0.473 C | 27.494 | 1448.7 |
| 168.0 | 168.60 | 34.193 D | -0.457 C | 27.505 | 1448.8 |
| 169.0 | 169.60 | 34.203 D | -0.451 C | 27.513 | 1448.9 |
| 170.0 | 170.65 | 34.209 D | -0.433 C | 27.517 | 1449.0 |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SALINITY 0/00
11.00 15.00 19.00 23.00 27.00 31.00 35.00
SIGMAT
15.00 18.00 21.00 24.00 27.00 30.00 33.00
DEPTH M
1
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100
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CRUISE D'IBERVILLE FIORD-75 EXPER NO. 1062

LAT N.80-34-50 LONG W.78-28-00 WATER DEPTH 534

DEPTH INCR. DATE 030475 LOCAL TIME 1535

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 3.5 | 3.65 | 20.910 E | -1.146 D | 16.802 | 1424.5 |
| 4.5 | 4.50 | 24.263 E | -0.767 D | 19.505 | 1430.9 |
| 5.5 | 5.50 | 26.844 E | -0.420 D | 21.579 | 1436.1 |
| 6.5 | 6.60 | 28.200 E | -0.259 D | 22.667 | 1438.8 |
| 7.5 | 7.60 | 28.965 E | -0.218 D | 23.282 | 1440.0 |
| 8.5 | 8.40 | 29.327 E | -0.129 D | 23.571 | 1441.0 |
| 9.5 | 9.50 | 29.636 E | -0.132 D | 23.819 | 1441.4 |
| 10.5 | 10.55 | 29.896 E | -0.222 D | 24.032 | 1441.4 |
| 11.5 | 11.50 | 30.125 E | -0.269 D | 24.217 | 1441.5 |
| 12.5 | 12.60 | 30.403 E | -0.359 D | 24.445 | 1441.4 |
| 13.5 | 13.45 | 30.685 E | -0.411 D | 24.673 | 1441.6 |
| 14.5 | 14.45 | 30.924 E | -0.425 D | 24.867 | 1441.9 |
| 15.5 | 15.45 | 31.182 E | -0.465 D | 25.076 | 1442.1 |
| 16.5 | 16.60 | 31.387 E | -0.547 D | 25.244 | 1442.0 |
| 17.5 | 17.60 | 31.523 E | -0.612 D | 25.356 | 1441.9 |
| 18.5 | 18.50 | 31.649 E | -0.720 D | 25.461 | 1441.6 |
| 19.5 | 19.45 | 31.743 E | -0.812 D | 25.540 | 1441.3 |
| 20.5 | 20.55 | 31.820 E | -0.897 D | 25.605 | 1441.0 |
| 21.5 | 21.50 | 31.881 E | -0.984 D | 25.656 | 1440.7 |
| 22.5 | 22.45 | 31.918 E | -1.028 D | 25.688 | 1440.6 |
| 23.5 | 23.50 | 31.959 E | -1.041 D | 25.721 | 1440.6 |
| 24.5 | 24.35 | 32.009 E | -1.141 D | 25.764 | 1440.2 |
| 25.5 | 25.50 | 32.027 E | -1.183 D | 25.780 | 1440.1 |
| 26.5 | 26.55 | 32.046 E | -1.207 D | 25.796 | 1440.0 |
| 27.5 | 27.45 | 32.078 E | -1.251 D | 25.823 | 1439.8 |
| 28.5 | 28.50 | 32.087 E | -1.271 D | 25.831 | 1439.8 |
| 29.5 | 29.55 | 32.102 E | -1.291 D | 25.843 | 1439.7 |
| 30.5 | 30.55 | 32.124 E | -1.314 D | 25.862 | 1439.7 |
| 31.5 | 31.45 | 32.150 E | -1.340 D | 25.883 | 1439.6 |
| 32.5 | 32.45 | 32.165 E | -1.364 D | 25.896 | 1439.5 |
| 33.5 | 33.45 | 32.183 E | -1.385 D | 25.911 | 1439.5 |
| 34.5 | 34.60 | 32.197 E | -1.405 D | 25.923 | 1439.4 |
| 35.5 | 35.55 | 32.213 E | -1.425 D | 25.936 | 1439.3 |
| 36.5 | 36.45 | 32.233 E | -1.443 D | 25.953 | 1439.3 |
| 37.5 | 37.55 | 32.243 E | -1.460 D | 25.961 | 1439.3 |
| 38.5 | 38.40 | 32.260 E | -1.476 D | 25.975 | 1439.2 |
| 39.5 | 39.65 | 32.281 E | -1.492 D | 25.993 | 1439.2 |
| 40.5 | 40.65 | 32.294 E | -1.506 D | 26.003 | 1439.2 |
| 41.5 | 41.60 | 32.313 E | -1.515 D | 26.019 | 1439.2 |
| 42.5 | 42.50 | 32.324 E | -1.517 D | 26.028 | 1439.2 |
| 43.5 | 43.60 | 32.343 E | -1.520 D | 26.043 | 1439.2 |
| 44.5 | 44.60 | 32.369 E | -1.523 D | 26.065 | 1439.3 |
| 45.5 | 45.50 | 32.397 E | -1.517 D | 26.088 | 1439.3 |
| 46.5 | 46.50 | 32.428 E | -1.517 D | 26.112 | 1439.4 |
| 47.5 | 47.65 | 32.468 E | -1.517 D | 26.145 | 1439.5 |
| 48.5 | 48.50 | 32.495 E | -1.512 D | 26.167 | 1439.5 |
| 49.5 | 49.55 | 32.524 E | -1.511 D | 26.190 | 1439.6 |
| 50.5 | 50.65 | 32.555 E | -1.510 D | 26.215 | 1439.7 |
| 51.5 | 51.70 | 32.591 E | -1.504 D | 26.244 | 1439.8 |
| 52.5 | 52.60 | 32.637 E | -1.490 D | 26.281 | 1439.9 |
| 53.5 | 53.55 | 32.664 E | -1.480 D | 26.303 | 1440.0 |
| 54.5 | 54.55 | 32.708 E | -1.499 D | 26.339 | 1440.0 |
| 55.5 | 55.50 | 32.728 E | -1.479 D | 26.355 | 1440.1 |
| 56.5 | 56.70 | 32.756 E | -1.466 D | 26.377 | 1440.3 |
| 57.5 | 57.55 | 32.785 E | -1.458 D | 26.401 | 1440.4 |
| 58.5 | 58.50 | 32.809 E | -1.468 D | 26.420 | 1440.4 |
| 59.5 | 59.70 | 32.833 E | -1.466 D | 26.439 | 1440.4 |
| 60.5 | 60.70 | 32.862 E | -1.461 D | 26.463 | 1440.5 |
| 61.5 | 61.75 | 32.891 E | -1.457 D | 26.486 | 1440.6 |
| 62.5 | 62.60 | 32.914 E | -1.433 D | 26.505 | 1440.7 |
| 63.5 | 63.80 | 32.942 E | -1.451 D | 26.528 | 1440.7 |
| 64.5 | 64.70 | 32.963 E | -1.414 D | 26.544 | 1440.9 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 65.5 | 65.80 | 33.000 E | -1.443 D | 26.574 | 1440.9 |
| 66.5 | 66.60 | 33.028 E | -1.444 D | 26.596 | 1440.9 |
| 67.5 | 67.80 | 33.050 E | -1.434 D | 26.614 | 1441.0 |
| 68.5 | 68.80 | 33.082 E | -1.422 D | 26.640 | 1441.1 |
| 69.5 | 69.65 | 33.106 E | -1.404 D | 26.659 | 1441.3 |
| 70.5 | 70.85 | 33.138 E | -1.395 D | 26.684 | 1441.4 |
| 71.5 | 71.65 | 33.165 E | -1.380 D | 26.706 | 1441.5 |
| 72.5 | 72.65 | 33.204 E | -1.354 D | 26.737 | 1441.7 |
| 73.5 | 73.75 | 33.231 E | -1.357 D | 26.759 | 1441.7 |
| 74.5 | 74.90 | 33.252 E | -1.344 D | 26.775 | 1441.8 |
| 75.5 | 75.70 | 33.275 E | -1.363 D | 26.795 | 1441.8 |
| 76.5 | 76.70 | 33.288 E | -1.322 D | 26.804 | 1442.0 |
| 77.5 | 77.90 | 33.315 E | -1.319 D | 26.826 | 1442.1 |
| 78.5 | 78.90 | 33.339 E | -1.311 D | 26.845 | 1442.2 |
| 79.5 | 79.95 | 33.385 E | -1.341 D | 26.883 | 1442.1 |
| 80.5 | 80.85 | 33.395 E | -1.353 D | 26.892 | 1442.1 |
| 81.5 | 81.90 | 33.400 E | -1.341 D | 26.896 | 1442.2 |
| 82.5 | 83.05 | 33.415 E | -1.324 D | 26.907 | 1442.3 |
| 83.5 | 83.95 | 33.465 E | -1.313 D | 26.947 | 1442.4 |
| 84.5 | 85.00 | 33.461 E | -1.310 D | 26.944 | 1442.5 |
| 85.5 | 85.95 | 33.472 E | -1.295 D | 26.952 | 1442.6 |
| 86.5 | 86.90 | 33.490 E | -1.284 D | 26.967 | 1442.6 |
| 87.5 | 87.90 | 33.507 E | -1.278 D | 26.980 | 1442.7 |
| 88.5 | 88.80 | 33.520 E | -1.263 D | 26.990 | 1442.8 |
| 89.5 | 89.90 | 33.534 E | -1.235 D | 27.001 | 1443.0 |
| 90.5 | 90.80 | 33.549 E | -1.204 D | 27.012 | 1443.2 |
| 91.5 | 92.00 | 33.551 E | -1.153 D | 27.012 | 1443.4 |
| 92.5 | 92.95 | 33.580 E | -1.115 D | 27.035 | 1443.7 |
| 93.5 | 94.00 | 33.606 E | -1.124 D | 27.056 | 1443.7 |
| 94.5 | 95.05 | 33.609 E | -1.093 D | 27.057 | 1443.8 |
| 95.5 | 95.95 | 33.627 E | -1.087 D | 27.071 | 1443.9 |
| 96.5 | 97.05 | 33.634 E | -1.052 D | 27.076 | 1444.1 |
| 97.5 | 98.00 | 33.654 E | -1.026 D | 27.091 | 1444.3 |
| 98.5 | 99.05 | 33.661 E | -1.009 D | 27.096 | 1444.4 |
| 99.5 | 100.15 | 33.667 D | -0.977 C | 27.100 | 1444.6 |
| 100.5 | 101.15 | 33.677 D | -0.945 C | 27.107 | 1444.7 |
| 101.5 | 102.10 | 33.704 D | -0.934 C | 27.128 | 1444.8 |
| 102.5 | 103.00 | 33.713 D | -0.921 C | 27.136 | 1444.9 |
| 103.5 | 104.15 | 33.723 D | -0.916 C | 27.143 | 1445.0 |
| 104.5 | 104.95 | 33.731 D | -0.901 C | 27.149 | 1445.1 |
| 105.5 | 106.15 | 33.741 D | -0.885 C | 27.157 | 1445.2 |
| 106.5 | 107.15 | 33.752 D | -0.877 C | 27.166 | 1445.3 |
| 107.5 | 108.05 | 33.759 D | -0.863 C | 27.171 | 1445.3 |
| 108.5 | 109.15 | 33.773 D | -0.848 C | 27.181 | 1445.5 |
| 109.5 | 110.25 | 33.787 D | -0.835 C | 27.192 | 1445.5 |
| 110.5 | 111.20 | 33.796 D | -0.826 C | 27.199 | 1445.6 |
| 111.5 | 112.20 | 33.804 D | -0.818 C | 27.205 | 1445.7 |
| 112.5 | 113.25 | 33.812 D | -0.811 C | 27.211 | 1445.7 |
| 113.5 | 114.30 | 33.820 D | -0.803 C | 27.217 | 1445.8 |
| 114.5 | 115.25 | 33.829 D | -0.798 C | 27.225 | 1445.9 |
| 115.5 | 116.30 | 33.832 D | -0.789 C | 27.227 | 1445.9 |
| 116.5 | 117.35 | 33.841 D | -0.783 C | 27.233 | 1446.0 |
| 117.5 | 118.30 | 33.849 D | -0.774 C | 27.240 | 1446.1 |
| 118.5 | 119.30 | 33.859 D | -0.767 C | 27.248 | 1446.1 |
| 119.5 | 120.35 | 33.867 D | -0.759 C | 27.254 | 1446.2 |
| 120.5 | 121.25 | 33.877 D | -0.754 C | 27.262 | 1446.2 |
| 121.5 | 122.40 | 33.885 D | -0.749 C | 27.268 | 1446.3 |
| 122.5 | 123.35 | 33.893 D | -0.745 C | 27.275 | 1446.3 |
| 123.5 | 124.40 | 33.898 D | -0.739 C | 27.278 | 1446.4 |
| 124.5 | 125.50 | 33.903 D | -0.733 C | 27.282 | 1446.4 |
| 125.5 | 126.40 | 33.910 D | -0.729 C | 27.287 | 1446.5 |
| 126.5 | 127.40 | 33.917 D | -0.724 C | 27.293 | 1446.5 |
| 127.5 | 128.40 | 33.924 D | -0.719 C | 27.298 | 1446.6 |
| 128.5 | 129.45 | 33.926 D | -0.713 C | 27.300 | 1446.6 |
| 129.5 | 130.40 | 33.933 D | -0.709 C | 27.305 | 1446.7 |
| 130.5 | 131.50 | 33.941 D | -0.706 C | 27.311 | 1446.7 |
| 131.5 | 132.55 | 33.950 D | -0.699 C | 27.318 | 1446.8 |
| 132.5 | 133.65 | 33.957 D | -0.692 C | 27.324 | 1446.8 |
| 133.5 | 134.60 | 33.964 D | -0.687 C | 27.330 | 1446.9 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 134.5 | 135.40 | 33.969 D | -0.679 C | 27.333 | 1446.9 |
| 135.5 | 136.50 | 33.977 D | -0.675 C | 27.340 | 1447.0 |
| 136.5 | 137.45 | 33.982 D | -0.670 C | 27.344 | 1447.0 |
| 137.5 | 138.65 | 33.991 D | -0.663 C | 27.351 | 1447.1 |
| 138.5 | 139.65 | 33.996 D | -0.656 C | 27.354 | 1447.2 |
| 139.5 | 140.50 | 34.000 D | -0.650 C | 27.357 | 1447.2 |
| 140.5 | 141.65 | 34.005 D | -0.645 C | 27.361 | 1447.3 |
| 141.5 | 142.50 | 34.011 D | -0.640 C | 27.366 | 1447.3 |
| 142.5 | 143.65 | 34.015 D | -0.633 C | 27.369 | 1447.4 |
| 143.5 | 144.75 | 34.022 D | -0.628 C | 27.374 | 1447.4 |
| 144.5 | 145.55 | 34.029 D | -0.623 C | 27.380 | 1447.5 |
| 145.5 | 146.70 | 34.039 D | -0.617 C | 27.387 | 1447.5 |
| 146.5 | 147.80 | 34.047 D | -0.613 C | 27.394 | 1447.6 |
| 147.5 | 148.85 | 34.053 D | -0.607 C | 27.398 | 1447.6 |
| 148.5 | 149.80 | 34.058 D | -0.601 C | 27.402 | 1447.7 |
| 149.5 | 150.80 | 34.064 D | -0.596 C | 27.407 | 1447.7 |
| 150.5 | 151.70 | 34.067 D | -0.590 C | 27.409 | 1447.8 |
| 151.5 | 152.70 | 34.075 D | -0.585 C | 27.415 | 1447.8 |
| 152.5 | 153.75 | 34.081 D | -0.579 C | 27.419 | 1447.9 |
| 153.5 | 154.90 | 34.087 D | -0.576 C | 27.424 | 1447.9 |
| 154.5 | 155.95 | 34.091 D | -0.570 C | 27.427 | 1448.0 |
| 155.5 | 156.90 | 34.098 D | -0.565 C | 27.433 | 1448.0 |
| 156.5 | 157.90 | 34.102 D | -0.558 C | 27.436 | 1448.1 |
| 157.5 | 158.85 | 34.112 D | -0.552 C | 27.444 | 1448.1 |
| 158.5 | 159.80 | 34.117 D | -0.544 C | 27.448 | 1448.2 |
| 159.5 | 160.75 | 34.126 D | -0.537 C | 27.454 | 1448.2 |
| 160.5 | 161.75 | 34.134 D | -0.529 C | 27.460 | 1448.3 |
| 161.5 | 162.85 | 34.148 D | -0.518 C | 27.472 | 1448.4 |
| 162.5 | 164.00 | 34.157 D | -0.507 C | 27.478 | 1448.5 |
| 163.5 | 164.80 | 34.168 D | -0.498 C | 27.487 | 1448.5 |
| 164.5 | 165.80 | 34.172 D | -0.489 C | 27.489 | 1448.6 |
| 165.5 | 166.95 | 34.183 D | -0.482 C | 27.498 | 1448.7 |
| 166.5 | 168.15 | 34.191 D | -0.473 C | 27.504 | 1448.7 |
| 167.5 | 168.90 | 34.202 D | -0.464 C | 27.513 | 1448.8 |
| 168.5 | 170.10 | 34.209 D | -0.453 C | 27.518 | 1448.9 |
| 169.5 | 171.10 | 34.223 D | -0.441 C | 27.528 | 1449.0 |
| 170.5 | 171.95 | 34.238 D | -0.428 C | 27.540 | 1449.1 |
| 171.5 | 173.00 | 34.247 D | -0.420 C | 27.547 | 1449.1 |
| 172.5 | 174.15 | 34.258 D | -0.411 C | 27.555 | 1449.2 |
| 173.5 | 175.15 | 34.270 D | -0.401 C | 27.565 | 1449.3 |
| 174.5 | 176.10 | 34.277 D | -0.387 C | 27.570 | 1449.4 |
| 175.5 | 177.15 | 34.293 D | -0.376 C | 27.582 | 1449.5 |
| 176.5 | 178.05 | 34.299 D | -0.363 C | 27.587 | 1449.6 |
| 177.5 | 179.10 | 34.316 D | -0.350 C | 27.599 | 1449.7 |
| 178.5 | 180.10 | 34.327 D | -0.342 C | 27.609 | 1449.7 |
| 179.5 | 181.05 | 34.338 D | -0.333 C | 27.617 | 1449.8 |
| 180.5 | 182.35 | 34.344 D | -0.323 C | 27.621 | 1449.9 |
| 181.5 | 183.30 | 34.356 D | -0.313 C | 27.630 | 1450.0 |
| 182.5 | 184.25 | 34.369 D | -0.303 C | 27.640 | 1450.0 |
| 183.5 | 185.25 | 34.377 D | -0.292 C | 27.646 | 1450.1 |
| 184.5 | 186.35 | 34.387 D | -0.282 C | 27.654 | 1450.2 |
| 185.5 | 187.35 | 34.400 D | -0.274 C | 27.664 | 1450.3 |
| 186.5 | 188.15 | 34.408 D | -0.266 C | 27.670 | 1450.3 |
| 187.5 | 189.20 | 34.413 D | -0.256 C | 27.674 | 1450.4 |
| 188.5 | 190.35 | 34.423 D | -0.249 C | 27.682 | 1450.5 |
| 189.5 | 191.45 | 34.431 D | -0.242 C | 27.687 | 1450.5 |
| 190.5 | 192.35 | 34.433 D | -0.233 C | 27.689 | 1450.6 |
| 191.5 | 193.30 | 34.442 D | -0.228 C | 27.696 | 1450.6 |
| 192.5 | 194.30 | 34.446 D | -0.219 C | 27.698 | 1450.7 |
| 193.5 | 195.35 | 34.453 D | -0.213 C | 27.704 | 1450.8 |
| 194.5 | 196.35 | 34.459 D | -0.204 C | 27.709 | 1450.8 |
| 195.5 | 197.40 | 34.467 D | -0.199 C | 27.715 | 1450.9 |
| 196.5 | 198.30 | 34.472 D | -0.191 C | 27.718 | 1450.9 |
| 197.5 | 199.40 | 34.478 D | -0.187 C | 27.723 | 1451.0 |
| 198.5 | 200.45 | 34.488 D | -0.183 C | 27.730 | 1451.0 |
| 199.5 | 201.45 | 34.488 D | -0.180 C | 27.730 | 1451.1 |
| 200.5 | 202.35 | 34.497 D | -0.176 C | 27.738 | 1451.1 |
| 201.5 | 203.45 | 34.503 D | -0.172 C | 27.743 | 1451.1 |
| 202.5 | 204.40 | 34.503 D | -0.165 C | 27.742 | 1451.2 |

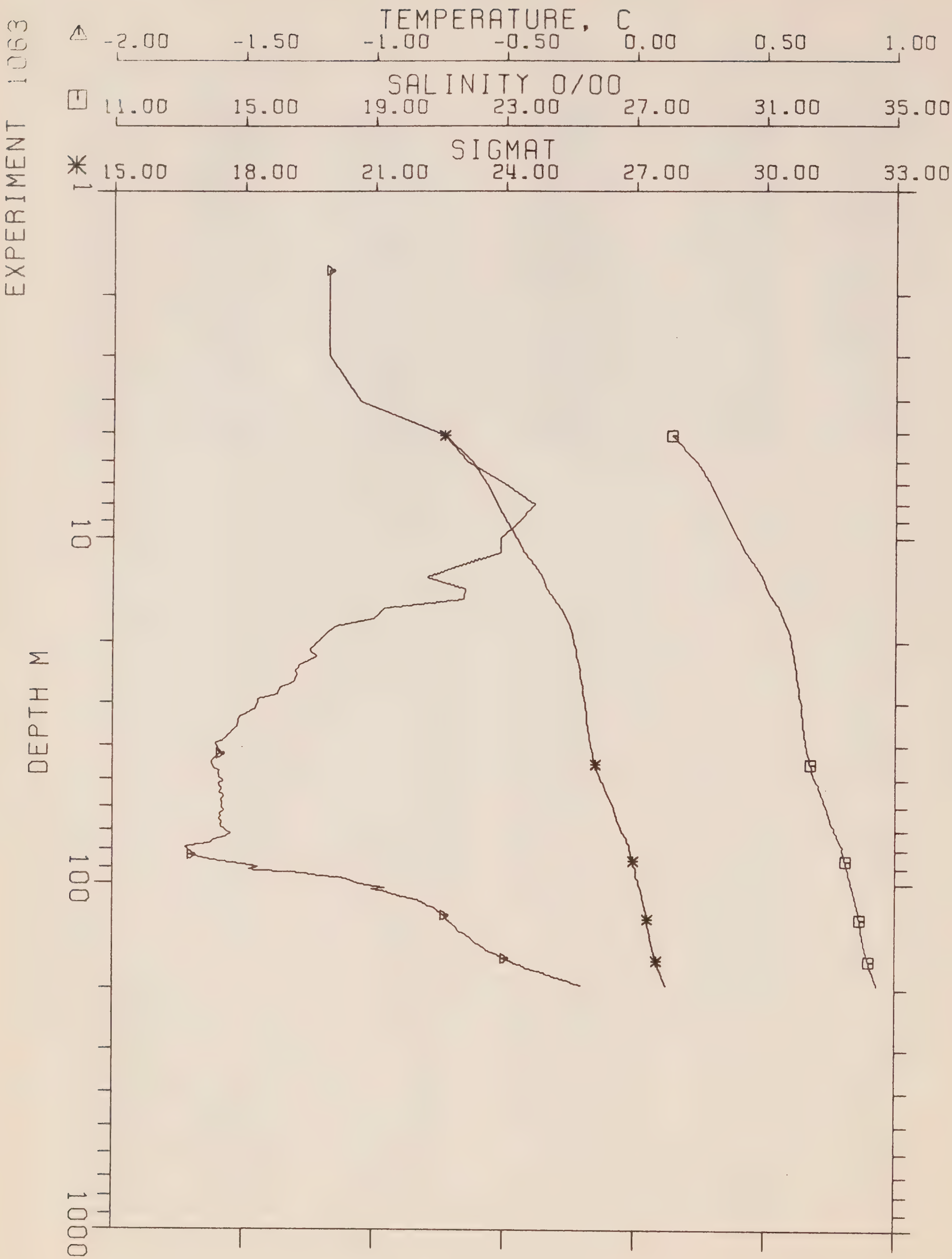
| DEPTH | PRESS | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| 203.5 | 205.40 | 34.512 | D | -0.164 | C | 27.749 | 1451.2 |
| 204.5 | 206.35 | 34.514 | D | -0.158 | C | 27.751 | 1451.3 |
| 205.5 | 207.40 | 34.517 | D | -0.153 | C | 27.753 | 1451.3 |
| 206.5 | 208.45 | 34.525 | D | -0.149 | C | 27.759 | 1451.4 |
| 207.5 | 209.50 | 34.527 | D | -0.145 | C | 27.760 | 1451.4 |
| 208.5 | 210.50 | 34.529 | D | -0.141 | C | 27.761 | 1451.4 |
| 209.5 | 211.40 | 34.532 | D | -0.139 | C | 27.764 | 1451.5 |
| 210.5 | 212.55 | 34.536 | D | -0.136 | C | 27.767 | 1451.5 |
| 211.5 | 213.55 | 34.537 | D | -0.134 | C | 27.768 | 1451.5 |
| 212.5 | 214.40 | 34.539 | D | -0.132 | C | 27.769 | 1451.6 |
| 213.5 | 215.70 | 34.540 | D | -0.130 | C | 27.770 | 1451.6 |
| 214.5 | 216.65 | 34.542 | D | -0.128 | C | 27.771 | 1451.6 |
| 215.5 | 217.65 | 34.547 | D | -0.128 | C | 27.776 | 1451.6 |
| 216.5 | 218.60 | 34.547 | D | -0.125 | C | 27.776 | 1451.7 |
| 217.5 | 219.55 | 34.549 | D | -0.123 | C | 27.777 | 1451.7 |
| 218.5 | 220.60 | 34.548 | D | -0.120 | C | 27.776 | 1451.7 |
| 219.5 | 221.70 | 34.550 | D | -0.118 | C | 27.778 | 1451.8 |
| 220.5 | 222.65 | 34.556 | D | -0.117 | C | 27.782 | 1451.8 |
| 221.5 | 223.60 | 34.554 | D | -0.113 | C | 27.780 | 1451.8 |
| 222.5 | 224.75 | 34.559 | D | -0.112 | C | 27.785 | 1451.8 |
| 223.5 | 225.85 | 34.559 | D | -0.110 | C | 27.784 | 1451.9 |
| 224.5 | 226.75 | 34.559 | D | -0.107 | C | 27.785 | 1451.9 |
| 225.5 | 227.80 | 34.563 | D | -0.106 | C | 27.788 | 1451.9 |
| 226.5 | 228.75 | 34.562 | D | -0.104 | C | 27.786 | 1452.0 |
| 227.5 | 229.70 | 34.566 | D | -0.104 | C | 27.789 | 1452.0 |
| 228.5 | 230.80 | 34.565 | D | -0.102 | C | 27.789 | 1452.0 |
| 229.5 | 231.85 | 34.569 | D | -0.101 | C | 27.792 | 1452.0 |
| 230.5 | 232.80 | 34.571 | D | -0.099 | C | 27.794 | 1452.1 |
| 231.5 | 233.75 | 34.573 | D | -0.099 | C | 27.795 | 1452.1 |
| 232.5 | 234.80 | 34.571 | D | -0.096 | C | 27.793 | 1452.1 |
| 233.5 | 236.00 | 34.573 | D | -0.095 | C | 27.795 | 1452.1 |
| 234.5 | 236.95 | 34.574 | D | -0.094 | C | 27.796 | 1452.2 |
| 235.5 | 237.80 | 34.576 | D | -0.093 | C | 27.797 | 1452.2 |
| 236.5 | 238.95 | 34.579 | D | -0.093 | C | 27.800 | 1452.2 |
| 237.5 | 239.90 | 34.579 | D | -0.092 | C | 27.800 | 1452.2 |
| 238.5 | 240.95 | 34.579 | D | -0.091 | C | 27.799 | 1452.2 |
| 239.5 | 242.00 | 34.581 | D | -0.090 | C | 27.801 | 1452.3 |
| 240.5 | 243.05 | 34.582 | D | -0.088 | C | 27.802 | 1452.3 |
| 241.5 | 244.15 | 34.582 | D | -0.086 | C | 27.802 | 1452.3 |
| 242.5 | 245.05 | 34.583 | D | -0.083 | C | 27.802 | 1452.3 |
| 243.5 | 245.95 | 34.585 | D | -0.082 | C | 27.804 | 1452.4 |
| 244.5 | 247.15 | 34.587 | D | -0.080 | C | 27.805 | 1452.4 |
| 245.5 | 247.95 | 34.588 | D | -0.079 | C | 27.806 | 1452.4 |
| 246.5 | 249.00 | 34.589 | D | -0.079 | C | 27.807 | 1452.4 |
| 247.5 | 250.00 | 34.590 | D | -0.079 | C | 27.808 | 1452.5 |
| 248.5 | 251.25 | 34.591 | D | -0.077 | C | 27.809 | 1452.5 |
| 249.5 | 252.30 | 34.592 | D | -0.075 | C | 27.810 | 1452.5 |
| 250.5 | 253.15 | 34.595 | D | -0.075 | C | 27.812 | 1452.5 |
| 251.5 | 254.30 | 34.594 | D | -0.074 | C | 27.811 | 1452.6 |
| 252.5 | 255.20 | 34.594 | D | -0.073 | C | 27.811 | 1452.6 |
| 253.5 | 256.25 | 34.596 | D | -0.071 | C | 27.812 | 1452.6 |
| 254.5 | 257.25 | 34.596 | D | -0.071 | C | 27.813 | 1452.6 |
| 255.5 | 258.30 | 34.599 | D | -0.070 | C | 27.815 | 1452.6 |
| 256.5 | 259.30 | 34.600 | D | -0.070 | C | 27.815 | 1452.7 |
| 257.5 | 260.25 | 34.601 | D | -0.070 | C | 27.816 | 1452.7 |
| 258.5 | 261.40 | 34.601 | D | -0.067 | C | 27.816 | 1452.7 |
| 259.5 | 262.35 | 34.603 | D | -0.067 | C | 27.818 | 1452.7 |
| 260.5 | 263.45 | 34.603 | D | -0.065 | C | 27.818 | 1452.8 |
| 261.5 | 264.50 | 34.606 | D | -0.064 | C | 27.820 | 1452.8 |
| 262.5 | 265.40 | 34.603 | D | -0.061 | C | 27.818 | 1452.8 |
| 263.5 | 266.50 | 34.606 | D | -0.062 | C | 27.820 | 1452.8 |
| 264.5 | 267.35 | 34.606 | D | -0.061 | C | 27.820 | 1452.8 |
| 265.5 | 268.50 | 34.606 | D | -0.060 | C | 27.820 | 1452.9 |
| 266.5 | 269.35 | 34.610 | D | -0.060 | C | 27.823 | 1452.9 |
| 267.5 | 270.55 | 34.608 | D | -0.058 | C | 27.822 | 1452.9 |
| 268.5 | 271.30 | 34.608 | D | -0.057 | C | 27.821 | 1452.9 |
| 269.5 | 272.50 | 34.610 | D | -0.057 | C | 27.823 | 1453.0 |
| 270.5 | 273.40 | 34.610 | D | -0.055 | C | 27.823 | 1453.0 |
| 271.5 | 274.50 | 34.611 | D | -0.054 | C | 27.824 | 1453.0 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 272.5 | 275.50 | 34.612 D | -0.054 C | 27.825 | 1453.0 |
| 273.5 | 276.45 | 34.610 D | -0.051 C | 27.822 | 1453.0 |
| 274.5 | 277.50 | 34.612 D | -0.051 C | 27.824 | 1453.1 |
| 275.5 | 278.50 | 34.614 D | -0.052 C | 27.826 | 1453.1 |
| 276.5 | 279.60 | 34.612 D | -0.050 C | 27.824 | 1453.1 |
| 277.5 | 280.45 | 34.614 D | -0.049 C | 27.825 | 1453.1 |
| 278.5 | 281.60 | 34.616 D | -0.049 C | 27.827 | 1453.1 |
| 279.5 | 282.60 | 34.617 D | -0.049 C | 27.828 | 1453.2 |
| 280.5 | 283.50 | 34.616 D | -0.049 C | 27.827 | 1453.2 |
| 281.5 | 284.65 | 34.614 D | -0.045 C | 27.825 | 1453.2 |
| 282.5 | 285.65 | 34.616 D | -0.046 C | 27.827 | 1453.2 |
| 283.5 | 286.50 | 34.617 D | -0.045 C | 27.828 | 1453.3 |
| 284.5 | 287.70 | 34.619 D | -0.045 C | 27.830 | 1453.3 |
| 285.5 | 288.65 | 34.618 D | -0.045 C | 27.829 | 1453.3 |
| 286.5 | 289.65 | 34.618 D | -0.043 C | 27.829 | 1453.3 |
| 287.5 | 290.70 | 34.619 D | -0.043 C | 27.830 | 1453.3 |
| 288.5 | 291.80 | 34.620 D | -0.043 C | 27.830 | 1453.4 |
| 289.5 | 292.80 | 34.620 D | -0.041 C | 27.830 | 1453.4 |
| 290.5 | 293.70 | 34.621 D | -0.041 C | 27.831 | 1453.4 |
| 291.5 | 294.85 | 34.622 D | -0.041 C | 27.832 | 1453.4 |
| 292.5 | 295.70 | 34.620 D | -0.040 C | 27.830 | 1453.4 |
| 293.5 | 296.95 | 34.622 D | -0.040 C | 27.832 | 1453.5 |
| 294.5 | 297.90 | 34.622 D | -0.039 C | 27.832 | 1453.5 |
| 295.5 | 299.00 | 34.620 D | -0.037 C | 27.830 | 1453.5 |
| 296.5 | 299.85 | 34.623 D | -0.038 C | 27.832 | 1453.5 |
| 297.5 | 300.85 | 34.621 D | -0.036 C | 27.831 | 1453.5 |
| 298.5 | 301.85 | 34.622 D | -0.037 C | 27.831 | 1453.5 |
| 299.5 | 302.95 | 34.622 D | -0.035 C | 27.831 | 1453.6 |
| 300.5 | 303.90 | 34.624 D | -0.036 C | 27.833 | 1453.6 |
| 301.5 | 304.90 | 34.622 D | -0.035 C | 27.832 | 1453.6 |
| 302.5 | 305.95 | 34.622 D | -0.033 C | 27.831 | 1453.6 |
| 303.5 | 307.05 | 34.622 D | -0.034 C | 27.832 | 1453.6 |
| 304.5 | 308.20 | 34.623 D | -0.033 C | 27.833 | 1453.7 |
| 305.5 | 309.15 | 34.622 D | -0.031 C | 27.831 | 1453.7 |
| 306.5 | 310.00 | 34.626 D | -0.034 C | 27.835 | 1453.7 |
| 307.5 | 310.95 | 34.625 D | -0.033 C | 27.834 | 1453.7 |
| 308.5 | 312.15 | 34.626 D | -0.032 C | 27.834 | 1453.7 |
| 309.5 | 313.05 | 34.625 D | -0.032 C | 27.834 | 1453.8 |
| 310.5 | 314.20 | 34.625 D | -0.032 C | 27.833 | 1453.8 |
| 311.5 | 315.25 | 34.623 D | -0.031 C | 27.832 | 1453.8 |
| 312.5 | 316.20 | 34.626 D | -0.032 C | 27.835 | 1453.8 |
| 313.5 | 317.20 | 34.623 D | -0.030 C | 27.832 | 1453.8 |
| 314.5 | 318.20 | 34.627 D | -0.031 C | 27.835 | 1453.8 |
| 315.5 | 319.20 | 34.624 D | -0.029 C | 27.833 | 1453.9 |
| 316.5 | 320.25 | 34.626 D | -0.029 C | 27.835 | 1453.9 |
| 317.5 | 321.30 | 34.626 D | -0.028 C | 27.834 | 1453.9 |
| 318.5 | 322.25 | 34.627 D | -0.027 C | 27.835 | 1453.9 |
| 319.5 | 323.35 | 34.627 D | -0.028 C | 27.836 | 1453.9 |
| 320.5 | 324.25 | 34.628 D | -0.029 C | 27.836 | 1454.0 |
| 321.5 | 325.25 | 34.626 D | -0.026 C | 27.834 | 1454.0 |
| 322.5 | 326.45 | 34.627 D | -0.027 C | 27.835 | 1454.0 |
| 323.5 | 327.30 | 34.625 D | -0.024 C | 27.833 | 1454.0 |
| 324.5 | 328.40 | 34.629 D | -0.026 C | 27.837 | 1454.0 |
| 325.5 | 329.30 | 34.629 D | -0.026 C | 27.837 | 1454.1 |
| 326.5 | 330.45 | 34.627 D | -0.024 C | 27.835 | 1454.1 |
| 327.5 | 331.40 | 34.628 D | -0.024 C | 27.836 | 1454.1 |
| 328.5 | 332.35 | 34.628 D | -0.023 C | 27.836 | 1454.1 |
| 329.5 | 333.40 | 34.627 D | -0.021 C | 27.835 | 1454.1 |
| 330.5 | 334.50 | 34.628 D | -0.022 C | 27.836 | 1454.2 |
| 331.5 | 335.40 | 34.627 D | -0.020 C | 27.835 | 1454.2 |
| 332.5 | 336.60 | 34.630 D | -0.023 C | 27.837 | 1454.2 |
| 333.5 | 337.45 | 34.628 D | -0.021 C | 27.836 | 1454.2 |
| 334.5 | 338.55 | 34.629 D | -0.022 C | 27.836 | 1454.2 |
| 335.5 | 339.75 | 34.629 D | -0.021 C | 27.836 | 1454.2 |
| 336.5 | 340.60 | 34.631 D | -0.022 C | 27.838 | 1454.3 |
| 337.5 | 341.75 | 34.629 D | -0.020 C | 27.836 | 1454.3 |
| 338.5 | 342.55 | 34.629 D | -0.019 C | 27.836 | 1454.3 |
| 339.5 | 343.65 | 34.628 D | -0.019 C | 27.836 | 1454.3 |
| 340.5 | 344.65 | 34.629 D | -0.019 C | 27.836 | 1454.3 |

| DEPTH | PRESS | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| 341.5 | 345.70 | 34.630 | D | -0.019 | C | 27.837 | 1454.4 |
| 342.5 | 346.60 | 34.631 | D | -0.019 | C | 27.838 | 1454.4 |
| 343.5 | 347.60 | 34.628 | D | -0.017 | C | 27.835 | 1454.4 |
| 344.5 | 348.65 | 34.631 | D | -0.018 | C | 27.838 | 1454.4 |
| 345.5 | 349.80 | 34.628 | D | -0.016 | C | 27.836 | 1454.4 |
| 346.5 | 350.80 | 34.628 | D | -0.016 | C | 27.835 | 1454.5 |
| 347.5 | 351.85 | 34.630 | D | -0.016 | C | 27.837 | 1454.5 |
| 348.5 | 352.90 | 34.629 | D | -0.016 | C | 27.837 | 1454.5 |
| 349.5 | 353.80 | 34.629 | D | -0.015 | C | 27.836 | 1454.5 |
| 350.5 | 354.80 | 34.630 | D | -0.015 | C | 27.837 | 1454.5 |
| 351.5 | 355.90 | 34.631 | D | -0.015 | C | 27.838 | 1454.5 |
| 352.5 | 356.85 | 34.629 | D | -0.014 | C | 27.836 | 1454.6 |
| 353.5 | 357.95 | 34.630 | D | -0.014 | C | 27.337 | 1454.6 |
| 354.5 | 358.85 | 34.629 | D | -0.012 | C | 27.836 | 1454.6 |
| 355.5 | 359.90 | 34.629 | D | -0.013 | C | 27.836 | 1454.6 |
| 356.5 | 360.70 | 34.629 | D | -0.012 | C | 27.836 | 1454.6 |
| 357.5 | 361.95 | 34.632 | D | -0.014 | C | 27.838 | 1454.7 |
| 358.5 | 362.85 | 34.631 | D | -0.012 | C | 27.837 | 1454.7 |
| 359.5 | 363.85 | 34.630 | D | -0.011 | C | 27.837 | 1454.7 |
| 360.5 | 364.90 | 34.628 | D | -0.010 | C | 27.836 | 1454.7 |
| 361.5 | 366.05 | 34.630 | D | -0.011 | C | 27.837 | 1454.7 |
| 362.5 | 366.90 | 34.628 | D | -0.009 | C | 27.835 | 1454.7 |
| 363.5 | 368.15 | 34.631 | D | -0.011 | C | 27.837 | 1454.8 |
| 364.5 | 368.90 | 34.629 | D | -0.010 | C | 27.836 | 1454.8 |
| 365.5 | 369.95 | 34.631 | D | -0.010 | C | 27.838 | 1454.8 |
| 366.5 | 371.15 | 34.631 | D | -0.010 | C | 27.837 | 1454.8 |
| 367.5 | 372.05 | 34.628 | D | -0.008 | C | 27.835 | 1454.8 |
| 368.5 | 372.95 | 34.632 | D | -0.010 | C | 27.839 | 1454.9 |
| 369.5 | 373.95 | 34.629 | D | -0.009 | C | 27.836 | 1454.9 |
| 370.5 | 375.05 | 34.628 | D | -0.007 | C | 27.835 | 1454.9 |
| 371.5 | 376.20 | 34.632 | D | -0.009 | C | 27.838 | 1454.9 |
| 372.5 | 377.15 | 34.629 | D | -0.007 | C | 27.836 | 1454.9 |
| 373.5 | 378.00 | 34.628 | D | -0.006 | C | 27.835 | 1454.9 |
| 374.5 | 379.10 | 34.629 | D | -0.006 | C | 27.835 | 1455.0 |
| 375.5 | 380.35 | 34.629 | D | -0.006 | C | 27.836 | 1455.0 |
| 376.5 | 381.30 | 34.630 | D | -0.006 | C | 27.837 | 1455.0 |
| 377.5 | 382.10 | 34.629 | D | -0.004 | C | 27.835 | 1455.0 |
| 378.5 | 383.25 | 34.630 | D | -0.006 | C | 27.837 | 1455.0 |
| 379.5 | 384.15 | 34.629 | D | -0.004 | C | 27.836 | 1455.1 |
| 380.5 | 385.35 | 34.629 | D | -0.005 | C | 27.836 | 1455.1 |
| 381.5 | 386.25 | 34.629 | D | -0.004 | C | 27.836 | 1455.1 |
| 382.5 | 387.25 | 34.627 | D | -0.003 | C | 27.834 | 1455.1 |
| 383.5 | 388.35 | 34.628 | D | -0.004 | C | 27.835 | 1455.1 |
| 384.5 | 389.30 | 34.629 | D | -0.004 | C | 27.836 | 1455.1 |
| 385.5 | 390.30 | 34.629 | D | -0.003 | C | 27.835 | 1455.2 |
| 386.5 | 391.40 | 34.629 | D | -0.003 | C | 27.836 | 1455.2 |
| 387.5 | 392.40 | 34.629 | D | -0.003 | C | 27.835 | 1455.2 |
| 388.5 | 393.25 | 34.631 | D | -0.004 | C | 27.837 | 1455.2 |
| 389.5 | 394.50 | 34.629 | D | -0.003 | C | 27.836 | 1455.2 |
| 390.5 | 395.35 | 34.630 | D | -0.003 | C | 27.836 | 1455.2 |
| 391.5 | 396.40 | 34.629 | D | -0.003 | C | 27.836 | 1455.3 |
| 392.5 | 397.40 | 34.630 | D | -0.002 | C | 27.837 | 1455.3 |
| 393.5 | 398.30 | 34.630 | D | -0.002 | C | 27.836 | 1455.3 |
| 394.5 | 399.55 | 34.629 | D | -0.002 | C | 27.836 | 1455.3 |
| 395.5 | 400.45 | 34.631 | D | -0.003 | C | 27.837 | 1455.3 |
| 396.5 | 401.50 | 34.631 | D | -0.003 | C | 27.837 | 1455.3 |
| 397.5 | 402.55 | 34.630 | D | -0.002 | C | 27.837 | 1455.4 |
| 398.5 | 403.50 | 34.628 | D | -0.002 | C | 27.835 | 1455.4 |
| 399.5 | 404.40 | 34.631 | D | -0.002 | C | 27.837 | 1455.4 |
| 400.5 | 405.60 | 34.630 | D | -0.002 | C | 27.836 | 1455.4 |
| 401.5 | 406.35 | 34.629 | D | -0.002 | C | 27.836 | 1455.4 |
| 402.5 | 407.45 | 34.630 | D | -0.002 | C | 27.837 | 1455.5 |
| 403.5 | 408.55 | 34.630 | D | -0.001 | C | 27.836 | 1455.5 |
| 404.5 | 409.50 | 34.628 | D | 0.0 | C | 27.835 | 1455.5 |
| 405.5 | 410.55 | 34.629 | D | -0.001 | C | 27.835 | 1455.5 |
| 406.5 | 411.60 | 34.631 | D | -0.001 | C | 27.837 | 1455.5 |
| 407.5 | 412.55 | 34.632 | D | -0.001 | C | 27.838 | 1455.5 |
| 408.5 | 413.60 | 34.630 | D | 0.0 | C | 27.836 | 1455.6 |
| 409.5 | 414.70 | 34.629 | D | 0.0 | C | 27.836 | 1455.6 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 410.5 | 415.80 | 34.631 D | -0.001 C | 27.837 | 1455.6 |
| 411.5 | 416.70 | 34.631 D | 0.0 C | 27.837 | 1455.6 |
| 412.5 | 417.65 | 34.631 D | 0.0 C | 27.837 | 1455.6 |
| 413.5 | 418.75 | 34.632 D | -0.001 C | 27.838 | 1455.6 |
| 414.5 | 419.60 | 34.631 D | 0.0 C | 27.837 | 1455.7 |
| 415.5 | 420.65 | 34.630 D | 0.0 C | 27.836 | 1455.7 |
| 416.5 | 421.65 | 34.631 D | 0.001 C | 27.837 | 1455.7 |
| 417.5 | 422.70 | 34.631 D | 0.001 C | 27.837 | 1455.7 |
| 418.5 | 423.90 | 34.634 D | 0.0 C | 27.840 | 1455.7 |
| 419.5 | 424.90 | 34.631 D | 0.001 C | 27.837 | 1455.8 |
| 420.5 | 426.05 | 34.633 D | 0.0 C | 27.839 | 1455.8 |
| 421.5 | 426.95 | 34.631 D | 0.001 C | 27.837 | 1455.8 |
| 422.5 | 427.90 | 34.632 D | 0.0 C | 27.838 | 1455.8 |
| 423.5 | 428.85 | 34.634 D | 0.0 C | 27.840 | 1455.8 |
| 424.5 | 429.95 | 34.632 D | 0.001 C | 27.838 | 1455.8 |
| 425.5 | 430.95 | 34.634 D | 0.0 C | 27.840 | 1455.9 |
| 426.5 | 431.90 | 34.634 D | 0.001 C | 27.839 | 1455.9 |
| 427.5 | 432.95 | 34.634 D | 0.0 C | 27.840 | 1455.9 |
| 428.5 | 433.95 | 34.634 D | 0.001 C | 27.840 | 1455.9 |
| 429.5 | 435.05 | 34.635 D | 0.0 C | 27.840 | 1455.9 |
| 430.5 | 436.05 | 34.634 D | 0.001 C | 27.840 | 1455.9 |
| 431.5 | 437.10 | 34.635 D | 0.001 C | 27.840 | 1456.0 |
| 432.5 | 437.90 | 34.635 D | 0.002 C | 27.840 | 1456.0 |
| 433.5 | 439.00 | 34.636 D | 0.001 C | 27.841 | 1456.0 |
| 434.5 | 440.00 | 34.635 D | 0.002 C | 27.840 | 1456.0 |
| 435.5 | 441.10 | 34.636 D | 0.002 C | 27.841 | 1456.0 |
| 436.5 | 442.20 | 34.634 D | 0.003 C | 27.840 | 1456.1 |
| 437.5 | 442.95 | 34.634 D | 0.004 C | 27.839 | 1456.1 |
| 438.5 | 444.15 | 34.636 D | 0.003 C | 27.841 | 1456.1 |
| 439.5 | 445.20 | 34.637 D | 0.003 C | 27.842 | 1456.1 |
| 440.5 | 446.05 | 34.634 D | 0.004 C | 27.839 | 1456.1 |
| 441.5 | 447.10 | 34.633 D | 0.004 C | 27.839 | 1456.1 |
| 442.5 | 448.10 | 34.636 D | 0.003 C | 27.841 | 1456.2 |
| 443.5 | 449.25 | 34.636 D | 0.003 C | 27.841 | 1456.2 |
| 444.5 | 450.15 | 34.636 D | 0.004 C | 27.841 | 1456.2 |
| 445.5 | 451.05 | 34.635 D | 0.004 C | 27.840 | 1456.2 |
| 446.5 | 452.25 | 34.634 D | 0.004 C | 27.840 | 1456.2 |
| 447.5 | 453.20 | 34.634 D | 0.005 C | 27.839 | 1456.2 |
| 448.5 | 454.15 | 34.636 D | 0.004 C | 27.841 | 1456.3 |
| 449.5 | 455.35 | 34.636 D | 0.005 C | 27.841 | 1456.3 |
| 450.5 | 456.30 | 34.634 D | 0.006 C | 27.839 | 1456.3 |
| 451.5 | 457.30 | 34.635 D | 0.005 C | 27.840 | 1456.3 |
| 452.5 | 458.40 | 34.634 D | 0.006 C | 27.839 | 1456.3 |
| 453.5 | 459.35 | 34.634 D | 0.006 C | 27.839 | 1456.3 |
| 454.5 | 460.40 | 34.634 D | 0.006 C | 27.840 | 1456.4 |
| 455.5 | 461.20 | 34.634 D | 0.007 C | 27.839 | 1456.4 |
| 456.5 | 462.45 | 34.635 D | 0.007 C | 27.840 | 1456.4 |
| 457.5 | 463.45 | 34.637 D | 0.005 C | 27.841 | 1456.4 |
| 458.5 | 464.30 | 34.635 D | 0.007 C | 27.840 | 1456.4 |
| 459.5 | 465.50 | 34.635 D | 0.008 C | 27.840 | 1456.5 |
| 460.5 | 466.45 | 34.636 D | 0.007 C | 27.840 | 1456.5 |
| 461.5 | 467.55 | 34.638 D | 0.007 C | 27.842 | 1456.5 |
| 462.5 | 468.55 | 34.636 D | 0.008 C | 27.841 | 1456.5 |
| 463.5 | 469.50 | 34.637 D | 0.008 C | 27.841 | 1456.5 |
| 464.5 | 470.50 | 34.634 D | 0.009 C | 27.839 | 1456.5 |
| 465.5 | 471.40 | 34.635 D | 0.009 C | 27.840 | 1456.6 |
| 466.5 | 472.60 | 34.634 D | 0.010 C | 27.839 | 1456.6 |
| 467.5 | 473.45 | 34.636 D | 0.009 C | 27.841 | 1456.6 |
| 468.5 | 474.60 | 34.637 D | 0.008 C | 27.841 | 1456.6 |
| 469.5 | 475.65 | 34.634 D | 0.010 C | 27.839 | 1456.6 |
| 470.5 | 476.55 | 34.636 D | 0.009 C | 27.841 | 1456.6 |
| 471.5 | 477.50 | 34.636 D | 0.010 C | 27.840 | 1456.7 |
| 472.5 | 478.65 | 34.637 D | 0.011 C | 27.841 | 1456.7 |
| 473.5 | 479.75 | 34.636 D | 0.011 C | 27.841 | 1456.7 |
| 474.5 | 480.70 | 34.636 D | 0.012 C | 27.840 | 1456.7 |
| 475.5 | 481.70 | 34.635 D | 0.012 C | 27.840 | 1456.7 |
| 476.5 | 482.60 | 34.634 D | 0.013 C | 27.838 | 1456.8 |
| 477.5 | 483.70 | 34.635 D | 0.011 C | 27.840 | 1456.8 |
| 478.5 | 484.65 | 34.635 D | 0.012 C | 27.840 | 1456.8 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 479.5 | 485.65 | 34.636 D | 0.012 C | 27.840 | 1456.8 |
| 480.5 | 486.75 | 34.634 D | 0.014 C | 27.839 | 1456.8 |
| 481.5 | 487.85 | 34.635 D | 0.013 C | 27.839 | 1456.8 |
| 482.5 | 488.65 | 34.636 D | 0.013 C | 27.840 | 1456.9 |
| 483.5 | 489.80 | 34.634 D | 0.014 C | 27.839 | 1456.9 |
| 484.5 | 490.80 | 34.637 D | 0.013 C | 27.842 | 1456.9 |
| 485.5 | 491.95 | 34.637 D | 0.014 C | 27.841 | 1456.9 |
| 486.5 | 492.95 | 34.636 D | 0.013 C | 27.840 | 1456.9 |
| 487.5 | 493.90 | 34.636 D | 0.014 C | 27.840 | 1457.0 |
| 488.5 | 494.80 | 34.638 D | 0.013 C | 27.842 | 1457.0 |
| 489.5 | 495.90 | 34.638 D | 0.014 C | 27.842 | 1457.0 |
| 490.5 | 496.85 | 34.636 D | 0.015 C | 27.840 | 1457.0 |
| 491.5 | 497.80 | 34.636 D | 0.014 C | 27.841 | 1457.0 |
| 492.5 | 499.10 | 34.636 D | 0.015 C | 27.840 | 1457.0 |
| 493.5 | 500.00 | 34.631 D | 0.020 C | 27.836 | 1457.1 |
| 494.5 | 501.05 | 34.636 D | 0.019 C | 27.840 | 1457.1 |
| 495.5 | 501.90 | 34.635 D | 0.019 C | 27.840 | 1457.1 |
| 496.5 | 503.10 | 34.635 D | 0.020 C | 27.839 | 1457.1 |
| 497.5 | 504.10 | 34.637 D | 0.019 C | 27.841 | 1457.1 |
| 498.5 | 505.15 | 34.636 D | 0.019 C | 27.840 | 1457.2 |
| 499.5 | 506.10 | 34.638 D | 0.013 C | 27.842 | 1457.2 |
| 500.5 | 507.05 | 34.636 D | 0.020 C | 27.840 | 1457.2 |


EXPERIMENT 1063
TEMPERATURE, C
-2.00 -1.50 -1.00 -0.50 0.00 0.50 1.00
SALINITY 0/00
11.00 15.00 19.00 23.00 27.00 31.00 35.00
SIGMAT
15.00 18.00 21.00 24.00 27.00 30.00 33.00
1
DEPTH M
10
100
1000

CRUISE D'IBERVILLE FIORD-75 EXPER NO. 1063

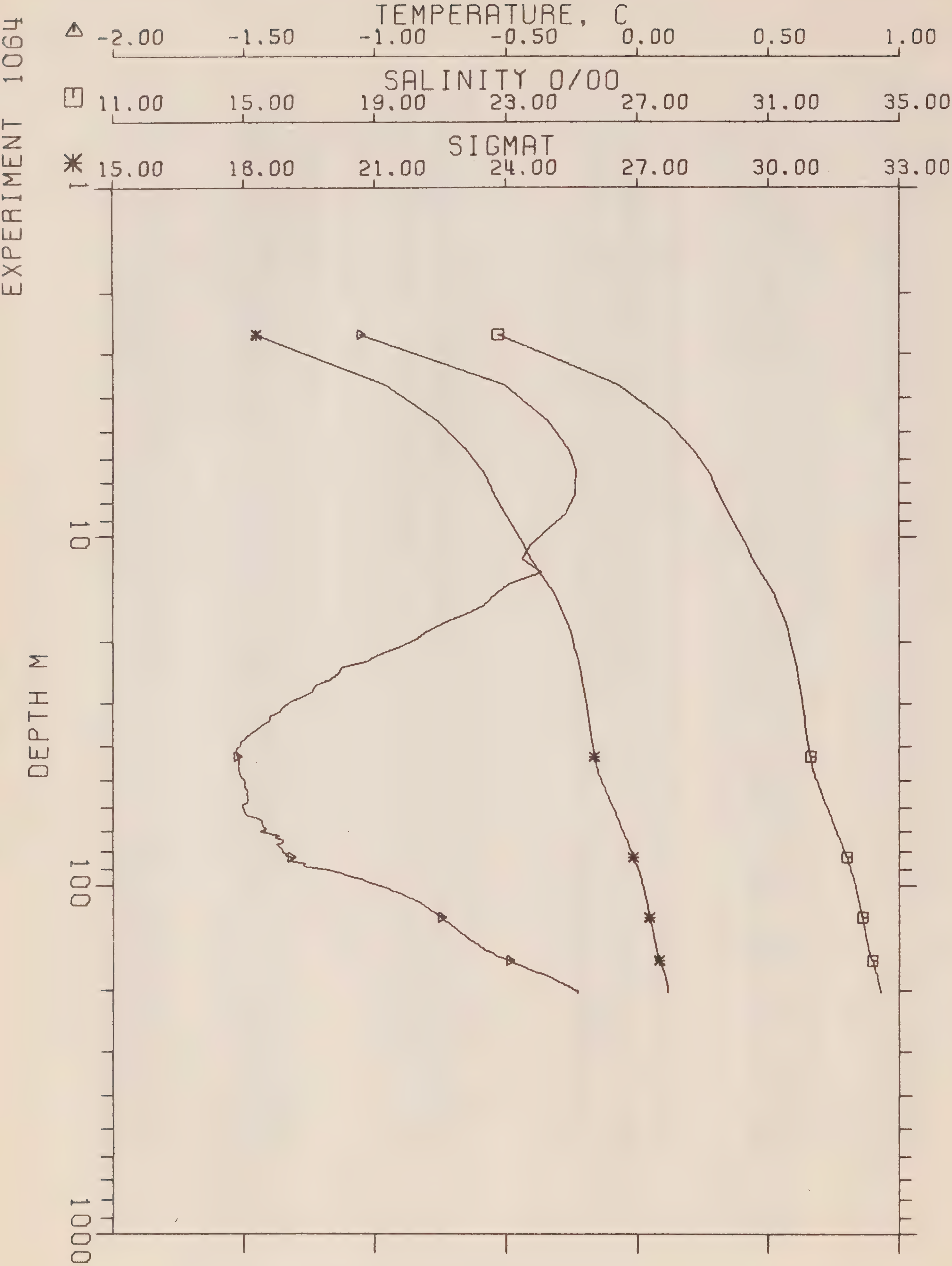
LAT N.80-34-40 LONG W.78-07-00 WATER DEPTH 196

DEPTH INCR. DATE 060475 LOCAL TIME 1645

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 2.0 | 1.70 | | -1.174 D | | |
| 3.0 | 3.00 | | -1.176 D | | |
| 4.0 | 4.05 | | -1.054 D | | |
| 5.0 | 5.05 | 28.114 E | -0.731 D | 22.609 | 1436.4 |
| 6.0 | 6.00 | 28.897 E | -0.643 D | 23.238 | 1437.9 |
| 7.0 | 7.00 | 29.333 E | -0.500 D | 23.586 | 1439.2 |
| 8.0 | 8.00 | 29.622 E | -0.386 D | 23.816 | 1440.2 |
| 9.0 | 9.05 | 29.915 E | -0.451 D | 24.054 | 1440.3 |
| 10.0 | 10.00 | 30.173 E | -0.517 D | 24.264 | 1440.4 |
| 11.0 | 11.05 | 30.407 E | -0.514 D | 24.453 | 1440.7 |
| 12.0 | 12.05 | 30.688 E | -0.668 D | 24.683 | 1440.4 |
| 13.0 | 13.00 | 30.913 E | -0.801 D | 24.870 | 1440.1 |
| 14.0 | 14.10 | 31.040 E | -0.649 D | 24.957 | 1441.0 |
| 15.0 | 15.05 | 31.244 E | -0.654 D | 25.132 | 1441.3 |
| 16.0 | 16.00 | 31.434 E | -0.959 D | 25.295 | 1440.1 |
| 17.0 | 17.10 | 31.566 E | -1.002 D | 25.402 | 1440.1 |
| 18.0 | 18.05 | 31.667 E | -1.150 D | 25.488 | 1439.6 |
| 19.0 | 19.05 | 31.755 E | -1.183 D | 25.560 | 1439.6 |
| 20.0 | 20.10 | 31.807 E | -1.220 D | 25.602 | 1439.5 |
| 21.0 | 21.10 | 31.850 E | -1.245 D | 25.638 | 1439.5 |
| 22.0 | 22.05 | 31.881 E | -1.222 D | 25.662 | 1439.6 |
| 23.0 | 23.10 | 31.934 E | -1.278 D | 25.707 | 1439.4 |
| 24.0 | 24.10 | 31.956 E | -1.301 D | 25.726 | 1439.4 |
| 25.0 | 25.15 | 31.979 E | -1.297 D | 25.743 | 1439.5 |
| 26.0 | 26.05 | 32.000 E | -1.310 D | 25.761 | 1439.4 |
| 27.0 | 27.10 | 32.028 E | -1.359 D | 25.785 | 1439.3 |
| 28.0 | 28.20 | 32.058 E | -1.372 D | 25.809 | 1439.3 |
| 29.0 | 29.15 | 32.099 E | -1.445 D | 25.845 | 1439.0 |
| 30.0 | 30.15 | 32.102 E | -1.444 D | 25.847 | 1439.0 |
| 31.0 | 31.15 | 32.117 E | -1.457 D | 25.859 | 1439.0 |
| 32.0 | 32.10 | 32.136 E | -1.492 D | 25.875 | 1438.9 |
| 33.0 | 33.15 | 32.157 E | -1.513 D | 25.893 | 1438.8 |
| 34.0 | 34.15 | 32.169 E | -1.519 D | 25.903 | 1438.8 |
| 35.0 | 35.15 | 32.179 E | -1.524 D | 25.911 | 1438.8 |
| 36.0 | 36.15 | 32.195 E | -1.539 D | 25.924 | 1438.8 |
| 37.0 | 37.15 | 32.215 E | -1.561 D | 25.941 | 1438.7 |
| 38.0 | 38.20 | 32.234 E | -1.573 D | 25.957 | 1438.7 |
| 39.0 | 39.25 | 32.259 E | -1.603 D | 25.978 | 1438.6 |
| 40.0 | 40.15 | 32.269 E | -1.599 D | 25.986 | 1438.7 |
| 41.0 | 41.15 | 32.294 E | -1.594 D | 26.006 | 1438.8 |
| 42.0 | 42.15 | 32.319 E | -1.590 D | 26.026 | 1438.8 |
| 43.0 | 43.20 | 32.353 E | -1.607 D | 26.054 | 1438.8 |
| 44.0 | 44.25 | 32.368 E | -1.618 D | 26.066 | 1438.8 |
| 45.0 | 45.25 | 32.398 E | -1.618 D | 26.090 | 1438.9 |
| 46.0 | 46.20 | 32.429 E | -1.611 D | 26.116 | 1438.9 |
| 47.0 | 47.20 | 32.450 E | -1.592 D | 26.132 | 1439.1 |
| 48.0 | 48.25 | 32.491 E | -1.593 D | 26.165 | 1439.2 |
| 49.0 | 49.20 | 32.526 E | -1.591 D | 26.193 | 1439.2 |
| 50.0 | 50.25 | 32.561 E | -1.575 D | 26.221 | 1439.4 |
| 51.0 | 51.25 | 32.621 E | -1.595 D | 26.271 | 1439.4 |
| 52.0 | 52.25 | 32.641 E | -1.591 D | 26.287 | 1439.4 |
| 53.0 | 53.25 | 32.670 E | -1.582 D | 26.310 | 1439.5 |
| 54.0 | 54.25 | 32.714 E | -1.590 D | 26.346 | 1439.6 |
| 55.0 | 55.25 | 32.741 E | -1.576 D | 26.368 | 1439.7 |
| 56.0 | 56.25 | 32.792 E | -1.575 D | 26.409 | 1439.8 |
| 57.0 | 57.25 | 32.817 E | -1.587 D | 26.429 | 1439.8 |
| 58.0 | 58.20 | 32.842 E | -1.580 D | 26.450 | 1439.9 |
| 59.0 | 59.30 | 32.892 E | -1.582 D | 26.490 | 1439.9 |
| 60.0 | 60.30 | 32.913 E | -1.578 D | 26.507 | 1440.0 |
| 61.0 | 61.30 | 32.931 E | -1.577 D | 26.521 | 1440.1 |
| 62.0 | 62.30 | 32.956 E | -1.585 D | 26.542 | 1440.1 |
| 63.0 | 63.30 | 32.976 E | -1.588 D | 26.558 | 1440.1 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 64.0 | 64.30 | 32.990 E | -1.587 D | 26.569 | 1440.1 |
| 65.0 | 65.25 | 33.014 E | -1.588 D | 26.539 | 1440.2 |
| 66.0 | 66.35 | 33.057 E | -1.581 D | 26.623 | 1440.3 |
| 67.0 | 67.35 | 33.086 E | -1.583 D | 26.647 | 1440.4 |
| 68.0 | 68.35 | 33.113 E | -1.585 D | 26.669 | 1440.4 |
| 69.0 | 69.30 | 33.110 E | -1.569 D | 26.666 | 1440.5 |
| 70.0 | 70.30 | 33.149 E | -1.558 D | 26.698 | 1440.6 |
| 71.0 | 71.35 | 33.193 E | -1.543 D | 26.733 | 1440.8 |
| 72.0 | 72.35 | 33.218 E | -1.562 D | 26.754 | 1440.7 |
| 73.0 | 73.35 | 33.245 E | -1.572 D | 26.776 | 1440.7 |
| 74.0 | 74.35 | 33.285 E | -1.610 D | 26.809 | 1440.6 |
| 75.0 | 75.40 | 33.308 E | -1.619 D | 26.828 | 1440.6 |
| 76.0 | 76.35 | 33.326 E | -1.631 D | 26.843 | 1440.6 |
| 77.0 | 77.40 | 33.382 E | -1.699 D | 26.890 | 1440.4 |
| 78.0 | 78.35 | 33.371 E | -1.718 D | 26.882 | 1440.3 |
| 79.0 | 79.45 | 33.368 E | -1.708 D | 26.879 | 1440.4 |
| 80.0 | 80.40 | 33.396 E | -1.712 D | 26.901 | 1440.4 |
| 81.0 | 81.45 | 33.408 E | -1.710 D | 26.911 | 1440.4 |
| 82.0 | 82.50 | 33.424 E | -1.701 D | 26.924 | 1440.5 |
| 83.0 | 83.40 | 33.436 E | -1.680 D | 26.933 | 1440.6 |
| 84.0 | 84.40 | 33.453 E | -1.643 D | 26.946 | 1440.9 |
| 85.0 | 85.50 | 33.469 E | -1.610 D | 26.958 | 1441.1 |
| 86.0 | 86.40 | 33.483 E | -1.578 D | 26.969 | 1441.2 |
| 87.0 | 87.45 | 33.491 E | -1.506 D | 26.973 | 1441.6 |
| 88.0 | 88.40 | 33.501 E | -1.471 D | 26.981 | 1441.8 |
| 89.0 | 89.50 | 33.521 E | -1.441 D | 26.996 | 1442.0 |
| 90.0 | 90.45 | 33.554 E | -1.478 D | 27.024 | 1441.9 |
| 91.0 | 91.40 | 33.548 E | -1.445 D | 27.018 | 1442.0 |
| 92.0 | 92.55 | 33.552 E | -1.326 D | 27.018 | 1442.6 |
| 93.0 | 93.45 | 33.566 E | -1.266 D | 27.027 | 1442.9 |
| 94.0 | 94.45 | 33.586 E | -1.211 D | 27.042 | 1443.3 |
| 95.0 | 95.55 | 33.592 E | -1.131 D | 27.044 | 1443.7 |
| 96.0 | 96.50 | 33.621 E | -1.112 D | 27.067 | 1443.8 |
| 97.0 | 97.55 | 33.640 E | -1.091 D | 27.082 | 1443.9 |
| 98.0 | 98.55 | 33.647 E | -1.075 D | 27.087 | 1444.0 |
| 99.0 | 99.50 | 33.655 E | -1.049 D | 27.093 | 1444.2 |
| 100.0 | 100.55 | 33.671 D | -1.027 C | 27.105 | 1444.3 |
| 101.0 | 101.55 | 33.680 D | -0.992 C | 27.111 | 1444.5 |
| 102.0 | 102.50 | 33.700 D | -0.954 C | 27.126 | 1444.7 |
| 103.0 | 103.60 | 33.712 D | -1.010 C | 27.137 | 1444.5 |
| 104.0 | 104.55 | 33.726 D | -0.970 C | 27.147 | 1444.7 |
| 105.0 | 105.60 | 33.714 D | -0.939 C | 27.137 | 1444.9 |
| 106.0 | 106.55 | 33.754 D | -0.918 C | 27.168 | 1445.1 |
| 107.0 | 107.60 | 33.752 D | -0.905 C | 27.166 | 1445.1 |
| 108.0 | 108.55 | 33.765 D | -0.890 C | 27.177 | 1445.2 |
| 109.0 | 109.65 | 33.771 D | -0.854 C | 27.180 | 1445.4 |
| 110.0 | 110.55 | 33.790 D | -0.834 C | 27.195 | 1445.6 |
| 111.0 | 111.65 | 33.798 D | -0.820 C | 27.201 | 1445.7 |
| 112.0 | 112.60 | 33.811 D | -0.809 C | 27.210 | 1445.7 |
| 113.0 | 113.65 | 33.820 D | -0.800 C | 27.217 | 1445.8 |
| 114.0 | 114.60 | 33.826 D | -0.795 C | 27.222 | 1445.9 |
| 115.0 | 115.65 | 33.834 D | -0.783 C | 27.228 | 1445.9 |
| 116.0 | 116.65 | 33.842 D | -0.767 C | 27.234 | 1446.0 |
| 117.0 | 117.65 | 33.854 D | -0.759 C | 27.243 | 1446.1 |
| 118.0 | 118.75 | 33.861 D | -0.753 C | 27.249 | 1446.2 |
| 119.0 | 119.70 | 33.870 D | -0.745 C | 27.256 | 1446.2 |
| 120.0 | 120.65 | 33.876 D | -0.738 C | 27.261 | 1446.3 |
| 121.0 | 121.75 | 33.885 D | -0.735 C | 27.268 | 1446.3 |
| 122.0 | 122.70 | 33.891 D | -0.730 C | 27.273 | 1446.4 |
| 123.0 | 123.70 | 33.895 D | -0.725 C | 27.275 | 1446.4 |
| 124.0 | 124.70 | 33.901 D | -0.722 C | 27.280 | 1446.5 |
| 125.0 | 125.70 | 33.909 D | -0.718 C | 27.287 | 1446.5 |
| 126.0 | 126.75 | 33.914 D | -0.712 C | 27.290 | 1446.6 |
| 127.0 | 127.70 | 33.917 D | -0.709 C | 27.292 | 1446.6 |
| 128.0 | 128.75 | 33.923 D | -0.704 C | 27.297 | 1446.7 |
| 129.0 | 129.65 | 33.929 D | -0.698 C | 27.302 | 1446.7 |
| 130.0 | 130.80 | 33.934 D | -0.693 C | 27.306 | 1446.8 |
| 131.0 | 131.75 | 33.940 D | -0.688 C | 27.310 | 1446.8 |
| 132.0 | 132.70 | 33.945 D | -0.684 C | 27.314 | 1446.8 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 133.0 | 133.75 | 33.949 D | -0.680 C | 27.317 | 1446.9 |
| 134.0 | 134.80 | 33.955 D | -0.678 C | 27.322 | 1446.9 |
| 135.0 | 135.80 | 33.961 D | -0.674 C | 27.327 | 1447.0 |
| 136.0 | 136.85 | 33.969 D | -0.663 C | 27.333 | 1447.0 |
| 137.0 | 137.80 | 33.977 D | -0.658 C | 27.339 | 1447.1 |
| 138.0 | 138.85 | 33.987 D | -0.650 C | 27.347 | 1447.2 |
| 139.0 | 139.85 | 33.996 D | -0.644 C | 27.354 | 1447.2 |
| 140.0 | 140.80 | 34.002 D | -0.636 C | 27.358 | 1447.3 |
| 141.0 | 141.85 | 34.011 D | -0.632 C | 27.365 | 1447.3 |
| 142.0 | 142.80 | 34.015 D | -0.627 C | 27.369 | 1447.4 |
| 143.0 | 143.90 | 34.019 D | -0.625 C | 27.371 | 1447.4 |
| 144.0 | 144.90 | 34.023 D | -0.620 C | 27.375 | 1447.4 |
| 145.0 | 145.85 | 34.029 D | -0.615 C | 27.379 | 1447.5 |
| 146.0 | 146.90 | 34.035 D | -0.609 C | 27.384 | 1447.5 |
| 147.0 | 147.95 | 34.044 D | -0.602 C | 27.391 | 1447.6 |
| 148.0 | 148.85 | 34.052 D | -0.596 C | 27.397 | 1447.7 |
| 149.0 | 149.90 | 34.056 D | -0.588 C | 27.400 | 1447.7 |
| 150.0 | 150.85 | 34.070 D | -0.578 C | 27.411 | 1447.8 |
| 151.0 | 151.90 | 34.075 D | -0.575 C | 27.415 | 1447.8 |
| 152.0 | 152.95 | 34.078 D | -0.571 C | 27.417 | 1447.9 |
| 153.0 | 153.95 | 34.085 D | -0.568 C | 27.422 | 1447.9 |
| 154.0 | 154.95 | 34.094 D | -0.558 C | 27.429 | 1448.0 |
| 155.0 | 155.90 | 34.102 D | -0.550 C | 27.436 | 1448.1 |
| 156.0 | 156.95 | 34.110 D | -0.544 C | 27.442 | 1448.1 |
| 157.0 | 158.00 | 34.116 D | -0.538 C | 27.447 | 1448.2 |
| 158.0 | 159.00 | 34.126 D | -0.526 C | 27.454 | 1448.3 |
| 159.0 | 159.95 | 34.135 D | -0.519 C | 27.460 | 1448.3 |
| 160.0 | 161.00 | 34.144 D | -0.514 C | 27.468 | 1448.4 |
| 161.0 | 162.05 | 34.147 D | -0.509 C | 27.470 | 1448.4 |
| 162.0 | 163.00 | 34.158 D | -0.499 C | 27.478 | 1448.5 |
| 163.0 | 163.95 | 34.169 D | -0.491 C | 27.487 | 1448.6 |
| 164.0 | 165.05 | 34.176 D | -0.483 C | 27.492 | 1448.6 |
| 165.0 | 166.05 | 34.183 D | -0.476 C | 27.498 | 1448.7 |
| 166.0 | 167.00 | 34.190 D | -0.472 C | 27.503 | 1448.7 |
| 167.0 | 168.00 | 34.196 D | -0.464 C | 27.508 | 1448.8 |
| 168.0 | 169.05 | 34.208 D | -0.454 C | 27.517 | 1448.9 |
| 169.0 | 170.10 | 34.217 D | -0.446 C | 27.524 | 1448.9 |
| 170.0 | 171.05 | 34.225 D | -0.438 C | 27.530 | 1449.0 |
| 171.0 | 172.05 | 34.240 D | -0.425 C | 27.541 | 1449.1 |
| 172.0 | 173.10 | 34.248 D | -0.419 C | 27.548 | 1449.2 |
| 173.0 | 174.05 | 34.251 D | -0.413 C | 27.550 | 1449.2 |
| 174.0 | 175.10 | 34.266 D | -0.403 C | 27.561 | 1449.3 |
| 175.0 | 176.10 | 34.274 D | -0.392 C | 27.567 | 1449.4 |
| 176.0 | 177.15 | 34.290 D | -0.376 C | 27.579 | 1449.5 |
| 177.0 | 178.10 | 34.305 D | -0.361 C | 27.591 | 1449.6 |
| 178.0 | 179.05 | 34.312 D | -0.354 C | 27.597 | 1449.6 |
| 179.0 | 180.10 | 34.324 D | -0.347 C | 27.606 | 1449.7 |
| 180.0 | 181.15 | 34.329 D | -0.343 C | 27.610 | 1449.8 |
| 181.0 | 182.10 | 34.340 D | -0.329 C | 27.618 | 1449.8 |
| 182.0 | 183.10 | 34.348 D | -0.319 C | 27.624 | 1449.9 |
| 183.0 | 184.15 | 34.359 D | -0.310 C | 27.633 | 1450.0 |
| 184.0 | 185.20 | 34.364 D | -0.304 C | 27.637 | 1450.0 |
| 185.0 | 186.20 | 34.372 D | -0.292 C | 27.642 | 1450.1 |
| 186.0 | 187.20 | 34.386 D | -0.280 C | 27.653 | 1450.2 |
| 187.0 | 188.20 | 34.403 D | -0.262 C | 27.666 | 1450.3 |
| 188.0 | 189.20 | 34.412 D | -0.255 C | 27.673 | 1450.4 |
| 189.0 | 190.25 | 34.418 D | -0.250 C | 27.677 | 1450.5 |
| 190.0 | 191.20 | 34.425 D | -0.243 C | 27.683 | 1450.5 |
| 191.0 | 192.25 | 34.428 D | -0.240 C | 27.685 | 1450.5 |
| 192.0 | 193.25 | 34.441 D | -0.218 C | 27.695 | 1450.7 |
| 193.0 | 194.25 | 34.448 D | -0.213 C | 27.700 | 1450.7 |
| 194.0 | 195.25 | 34.456 D | -0.210 C | 27.706 | 1450.8 |
| 195.0 | 196.25 | 34.458 D | -0.205 C | 27.708 | 1450.8 |


EXPERIMENT 1064
TEMPERATURE, C
-2.00 -1.50 -1.00 -0.50 0.00 0.50 1.00
SALINITY 0/00
11.00 15.00 19.00 23.00 27.00 31.00 35.00
SIGMAT
15.00 18.00 21.00 24.00 27.00 30.00 33.00
DEPTH M
1
10
100
1000

CRUISE 15-75-024 D'IBERVILLE FIORD-75 EXPER NO. 1064

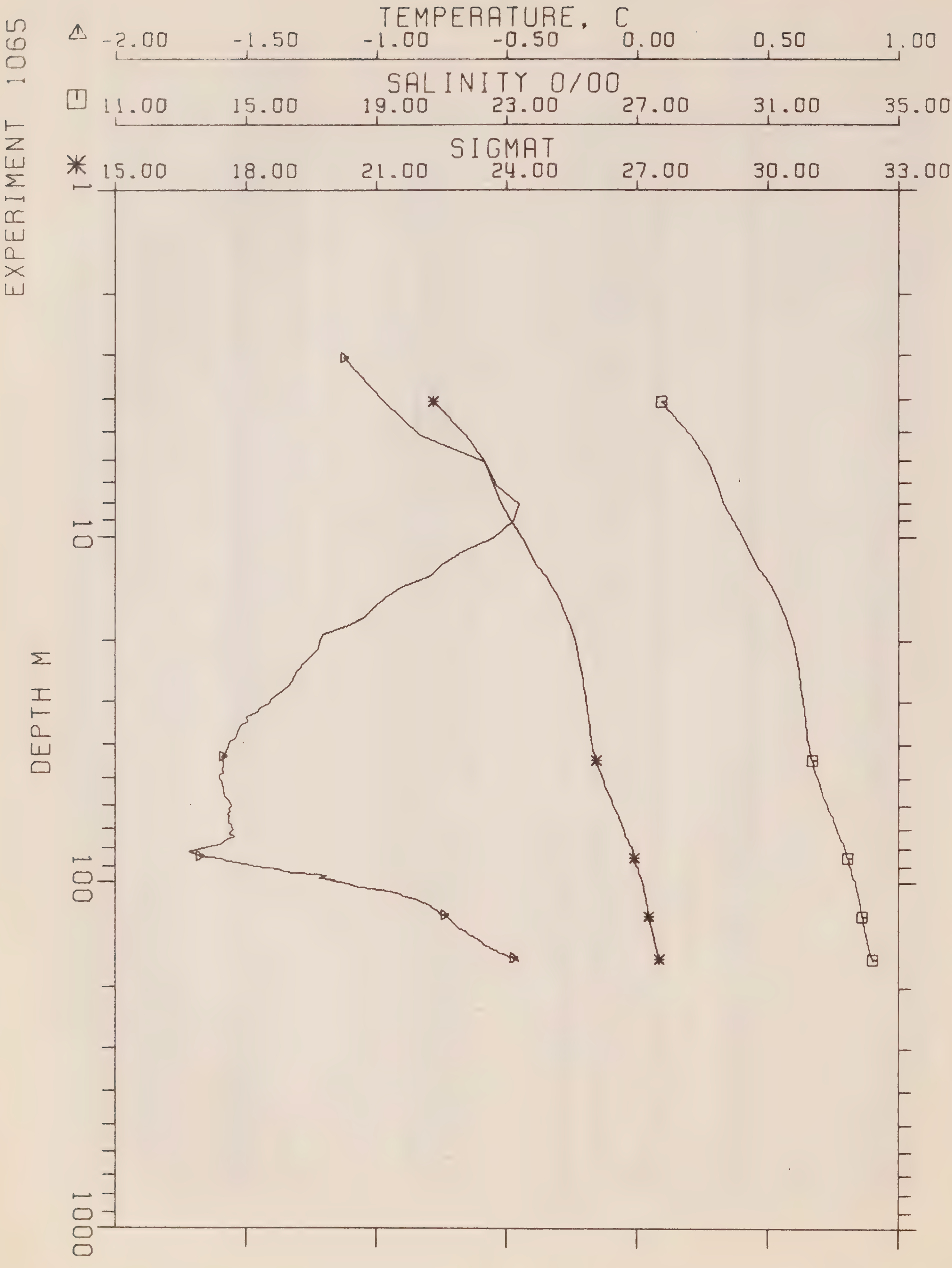
LAT N.80-35-00 LONG W.79-45-00 WATER DEPTH 214

DEPTH INCR. DATE 070475 LOCAL TIME 1600

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 2.0 | 2.63 | 22.776 E | -1.053 D | 18.307 | 1427.5 |
| 3.0 | 3.64 | 26.449 E | -0.505 D | 21.262 | 1435.2 |
| 4.0 | 4.62 | 27.914 E | -0.339 D | 22.439 | 1438.0 |
| 5.0 | 5.59 | 28.739 E | -0.261 D | 23.101 | 1439.5 |
| 6.0 | 6.57 | 29.254 E | -0.227 D | 23.514 | 1440.4 |
| 7.0 | 7.57 | 29.548 E | -0.233 D | 23.751 | 1440.3 |
| 8.0 | 8.56 | 29.835 E | -0.267 D | 23.934 | 1441.0 |
| 9.0 | 9.58 | 30.112 E | -0.344 D | 24.209 | 1441.1 |
| 10.0 | 10.57 | 30.378 E | -0.403 D | 24.426 | 1441.2 |
| 11.0 | 11.58 | 30.563 E | -0.434 D | 24.576 | 1441.3 |
| 12.0 | 12.60 | 30.796 E | -0.362 D | 24.761 | 1442.0 |
| 13.0 | 13.59 | 31.027 E | -0.482 D | 24.951 | 1441.8 |
| 14.0 | 14.56 | 31.214 E | -0.535 D | 25.104 | 1441.8 |
| 15.0 | 15.56 | 31.342 E | -0.575 D | 25.208 | 1441.8 |
| 16.0 | 16.55 | 31.456 E | -0.645 D | 25.303 | 1441.6 |
| 17.0 | 17.60 | 31.572 E | -0.729 D | 25.399 | 1441.4 |
| 18.0 | 18.57 | 31.664 E | -0.795 D | 25.476 | 1441.3 |
| 19.0 | 19.57 | 31.708 E | -0.835 D | 25.512 | 1441.2 |
| 20.0 | 20.63 | 31.752 E | -0.901 D | 25.550 | 1440.9 |
| 21.0 | 21.60 | 31.813 E | -0.974 D | 25.601 | 1440.7 |
| 22.0 | 22.59 | 31.865 E | -1.018 D | 25.644 | 1440.6 |
| 23.0 | 23.58 | 31.910 E | -1.117 D | 25.684 | 1440.2 |
| 24.0 | 24.57 | 31.936 E | -1.131 D | 25.704 | 1440.2 |
| 25.0 | 25.58 | 31.967 E | -1.161 D | 25.731 | 1440.1 |
| 26.0 | 26.61 | 32.004 E | -1.220 D | 25.762 | 1439.9 |
| 27.0 | 27.61 | 32.027 E | -1.230 D | 25.781 | 1439.9 |
| 28.0 | 28.65 | 32.054 E | -1.266 D | 25.803 | 1439.8 |
| 29.0 | 29.66 | 32.076 E | -1.316 D | 25.823 | 1439.6 |
| 30.0 | 30.68 | 32.099 E | -1.341 D | 25.842 | 1439.5 |
| 31.0 | 31.63 | 32.114 E | -1.354 D | 25.854 | 1439.5 |
| 32.0 | 32.61 | 32.142 E | -1.395 D | 25.878 | 1439.3 |
| 33.0 | 33.62 | 32.149 E | -1.396 D | 25.884 | 1439.4 |
| 34.0 | 34.59 | 32.168 E | -1.425 D | 25.900 | 1439.3 |
| 35.0 | 35.61 | 32.184 E | -1.444 D | 25.913 | 1439.2 |
| 36.0 | 36.62 | 32.206 E | -1.467 D | 25.931 | 1439.2 |
| 37.0 | 37.64 | 32.228 E | -1.486 D | 25.950 | 1439.1 |
| 38.0 | 38.66 | 32.246 E | -1.506 D | 25.965 | 1439.1 |
| 39.0 | 39.53 | 32.263 E | -1.508 D | 25.978 | 1439.1 |
| 40.0 | 40.55 | 32.281 E | -1.522 D | 25.993 | 1439.1 |
| 41.0 | 41.55 | 32.301 E | -1.527 D | 26.010 | 1439.1 |
| 42.0 | 42.55 | 32.323 E | -1.521 D | 26.027 | 1439.2 |
| 43.0 | 43.58 | 32.343 E | -1.514 D | 26.043 | 1439.2 |
| 44.0 | 44.62 | 32.358 E | -1.513 D | 26.056 | 1439.3 |
| 45.0 | 45.59 | 32.379 E | -1.517 D | 26.073 | 1439.3 |
| 46.0 | 46.61 | 32.406 E | -1.517 D | 26.095 | 1439.4 |
| 47.0 | 47.62 | 32.435 E | -1.514 D | 26.118 | 1439.4 |
| 48.0 | 48.63 | 32.469 E | -1.507 D | 26.145 | 1439.5 |
| 49.0 | 49.62 | 32.504 E | -1.497 D | 26.174 | 1439.6 |
| 50.0 | 50.61 | 32.550 E | -1.489 D | 26.211 | 1439.8 |
| 51.0 | 51.64 | 32.589 E | -1.494 D | 26.242 | 1439.8 |
| 52.0 | 52.63 | 32.621 E | -1.489 D | 26.268 | 1439.9 |
| 53.0 | 53.65 | 32.643 E | -1.480 D | 26.286 | 1440.0 |
| 54.0 | 54.66 | 32.673 E | -1.484 D | 26.310 | 1440.0 |
| 55.0 | 55.65 | 32.702 E | -1.483 D | 26.334 | 1440.1 |
| 56.0 | 56.69 | 32.732 E | -1.481 D | 26.358 | 1440.2 |
| 57.0 | 57.68 | 32.769 E | -1.479 D | 26.388 | 1440.2 |
| 58.0 | 58.68 | 32.804 E | -1.503 D | 26.417 | 1440.2 |
| 59.0 | 59.69 | 32.842 E | -1.502 D | 26.448 | 1440.3 |
| 60.0 | 60.73 | 32.877 E | -1.498 D | 26.476 | 1440.3 |
| 61.0 | 61.75 | 32.906 E | -1.495 D | 26.499 | 1440.4 |
| 62.0 | 62.73 | 32.932 E | -1.486 D | 26.520 | 1440.5 |
| 63.0 | 63.75 | 32.958 E | -1.454 D | 26.540 | 1440.7 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 64.0 | 64.76 | 32.983 E | -1.430 D | 26.560 | 1440.9 |
| 65.0 | 65.76 | 33.005 E | -1.428 D | 26.578 | 1440.9 |
| 66.0 | 66.76 | 33.034 E | -1.428 D | 26.601 | 1441.0 |
| 67.0 | 67.79 | 33.054 E | -1.420 D | 26.617 | 1441.1 |
| 68.0 | 68.76 | 33.084 E | -1.408 D | 26.641 | 1441.2 |
| 69.0 | 69.78 | 33.110 E | -1.434 D | 26.663 | 1441.1 |
| 70.0 | 70.82 | 33.130 E | -1.399 D | 26.678 | 1441.3 |
| 71.0 | 71.80 | 33.158 E | -1.359 D | 26.700 | 1441.6 |
| 72.0 | 72.81 | 33.197 E | -1.378 D | 26.732 | 1441.6 |
| 73.0 | 73.83 | 33.225 E | -1.348 D | 26.754 | 1441.8 |
| 74.0 | 74.83 | 33.254 E | -1.344 D | 26.778 | 1441.8 |
| 75.0 | 75.83 | 33.276 E | -1.372 D | 26.796 | 1441.8 |
| 76.0 | 76.83 | 33.294 E | -1.365 D | 26.810 | 1441.8 |
| 77.0 | 77.82 | 33.313 E | -1.355 D | 26.825 | 1441.9 |
| 78.0 | 78.85 | 33.335 E | -1.350 D | 26.843 | 1442.0 |
| 79.0 | 79.86 | 33.354 E | -1.349 D | 26.858 | 1442.0 |
| 80.0 | 80.85 | 33.372 E | -1.332 D | 26.873 | 1442.2 |
| 81.0 | 81.88 | 33.396 E | -1.341 D | 26.892 | 1442.2 |
| 82.0 | 82.91 | 33.411 E | -1.318 D | 26.904 | 1442.3 |
| 83.0 | 83.93 | 33.434 E | -1.313 D | 26.922 | 1442.4 |
| 84.0 | 84.96 | 33.452 E | -1.322 D | 26.937 | 1442.4 |
| 85.0 | 85.94 | 33.463 E | -1.261 D | 26.944 | 1442.7 |
| 86.0 | 86.94 | 33.489 E | -1.266 D | 26.965 | 1442.7 |
| 87.0 | 87.95 | 33.512 E | -1.268 D | 26.984 | 1442.8 |
| 88.0 | 88.95 | 33.526 E | -1.210 D | 26.993 | 1443.1 |
| 89.0 | 89.97 | 33.546 E | -1.173 D | 27.008 | 1443.3 |
| 90.0 | 90.99 | 33.567 E | -1.150 D | 27.025 | 1443.5 |
| 91.0 | 92.01 | 33.589 E | -1.123 D | 27.042 | 1443.6 |
| 92.0 | 93.01 | 33.602 E | -1.108 D | 27.052 | 1443.7 |
| 93.0 | 94.02 | 33.616 E | -1.090 D | 27.062 | 1443.9 |
| 94.0 | 95.02 | 33.632 E | -1.059 D | 27.074 | 1444.0 |
| 95.0 | 96.01 | 33.647 E | -1.043 D | 27.086 | 1444.2 |
| 96.0 | 97.03 | 33.662 E | -1.027 D | 27.098 | 1444.3 |
| 97.0 | 98.03 | 33.670 E | -1.012 D | 27.104 | 1444.4 |
| 98.0 | 99.05 | 33.680 E | -0.996 D | 27.111 | 1444.5 |
| 99.0 | 100.05 | 33.690 D | -0.977 C | 27.119 | 1444.6 |
| 100.0 | 101.08 | 33.703 D | -0.958 C | 27.128 | 1444.7 |
| 101.0 | 102.08 | 33.717 D | -0.943 C | 27.139 | 1444.8 |
| 102.0 | 103.09 | 33.725 D | -0.932 C | 27.145 | 1444.9 |
| 103.0 | 104.11 | 33.733 D | -0.913 C | 27.151 | 1445.0 |
| 104.0 | 105.10 | 33.746 D | -0.900 C | 27.161 | 1445.1 |
| 105.0 | 106.12 | 33.756 D | -0.888 C | 27.169 | 1445.2 |
| 106.0 | 107.13 | 33.765 D | -0.878 C | 27.175 | 1445.3 |
| 107.0 | 108.16 | 33.777 D | -0.863 C | 27.185 | 1445.4 |
| 108.0 | 109.16 | 33.786 D | -0.850 C | 27.192 | 1445.5 |
| 109.0 | 110.16 | 33.797 D | -0.840 C | 27.200 | 1445.5 |
| 110.0 | 111.19 | 33.806 D | -0.830 C | 27.207 | 1445.6 |
| 111.0 | 112.19 | 33.814 D | -0.823 C | 27.213 | 1445.7 |
| 112.0 | 113.22 | 33.821 D | -0.814 C | 27.219 | 1445.7 |
| 113.0 | 114.24 | 33.830 D | -0.808 C | 27.226 | 1445.8 |
| 114.0 | 115.21 | 33.837 D | -0.801 C | 27.231 | 1445.9 |
| 115.0 | 116.22 | 33.844 D | -0.794 C | 27.237 | 1445.9 |
| 116.0 | 117.24 | 33.852 D | -0.787 C | 27.243 | 1446.0 |
| 117.0 | 118.25 | 33.860 D | -0.778 C | 27.249 | 1446.0 |
| 118.0 | 119.23 | 33.870 D | -0.773 C | 27.257 | 1446.1 |
| 119.0 | 120.24 | 33.875 D | -0.766 C | 27.261 | 1446.2 |
| 120.0 | 121.24 | 33.884 D | -0.758 C | 27.268 | 1446.2 |
| 121.0 | 122.26 | 33.892 D | -0.751 C | 27.273 | 1446.3 |
| 122.0 | 123.26 | 33.899 D | -0.745 C | 27.279 | 1446.3 |
| 123.0 | 124.28 | 33.905 D | -0.740 C | 27.284 | 1446.4 |
| 124.0 | 125.29 | 33.913 D | -0.734 C | 27.290 | 1446.4 |
| 125.0 | 126.26 | 33.918 D | -0.728 C | 27.294 | 1446.5 |
| 126.0 | 127.32 | 33.927 D | -0.721 C | 27.301 | 1446.6 |
| 127.0 | 128.28 | 33.934 D | -0.715 C | 27.306 | 1446.6 |
| 128.0 | 129.33 | 33.942 D | -0.708 C | 27.313 | 1446.7 |
| 129.0 | 130.32 | 33.950 D | -0.702 C | 27.319 | 1446.7 |
| 130.0 | 131.36 | 33.958 D | -0.695 C | 27.325 | 1446.8 |
| 131.0 | 132.37 | 33.965 D | -0.689 C | 27.330 | 1446.8 |
| 132.0 | 133.37 | 33.972 D | -0.686 C | 27.336 | 1446.9 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 133.0 | 134.38 | 33.977 D | -0.680 C | 27.340 | 1446.9 |
| 134.0 | 135.37 | 33.986 D | -0.675 C | 27.347 | 1447.0 |
| 135.0 | 136.41 | 33.993 D | -0.669 C | 27.353 | 1447.0 |
| 136.0 | 137.46 | 33.999 D | -0.663 C | 27.357 | 1447.1 |
| 137.0 | 138.44 | 34.006 D | -0.658 C | 27.363 | 1447.1 |
| 138.0 | 139.42 | 34.010 D | -0.652 C | 27.366 | 1447.2 |
| 139.0 | 140.45 | 34.016 D | -0.648 C | 27.370 | 1447.2 |
| 140.0 | 141.48 | 34.025 D | -0.645 C | 27.377 | 1447.3 |
| 141.0 | 142.46 | 34.032 D | -0.637 C | 27.382 | 1447.3 |
| 142.0 | 143.49 | 34.037 D | -0.630 C | 27.386 | 1447.4 |
| 143.0 | 144.49 | 34.046 D | -0.624 C | 27.393 | 1447.5 |
| 144.0 | 145.50 | 34.053 D | -0.617 C | 27.399 | 1447.5 |
| 145.0 | 146.51 | 34.060 D | -0.611 C | 27.404 | 1447.6 |
| 146.0 | 147.51 | 34.064 D | -0.605 C | 27.407 | 1447.6 |
| 147.0 | 148.53 | 34.072 D | -0.600 C | 27.413 | 1447.7 |
| 148.0 | 149.54 | 34.078 D | -0.596 C | 27.418 | 1447.7 |
| 149.0 | 150.54 | 34.085 D | -0.591 C | 27.424 | 1447.8 |
| 150.0 | 151.55 | 34.089 D | -0.585 C | 27.426 | 1447.8 |
| 151.0 | 152.56 | 34.093 D | -0.581 C | 27.429 | 1447.9 |
| 152.0 | 153.57 | 34.107 D | -0.568 C | 27.440 | 1447.9 |
| 153.0 | 154.61 | 34.116 D | -0.558 C | 27.447 | 1448.0 |
| 154.0 | 155.61 | 34.126 D | -0.550 C | 27.455 | 1448.1 |
| 155.0 | 156.59 | 34.132 D | -0.545 C | 27.460 | 1448.1 |
| 156.0 | 157.61 | 34.139 D | -0.540 C | 27.465 | 1448.2 |
| 157.0 | 158.64 | 34.144 D | -0.536 C | 27.469 | 1448.2 |
| 158.0 | 159.66 | 34.152 D | -0.526 C | 27.475 | 1448.3 |
| 159.0 | 160.65 | 34.161 D | -0.516 C | 27.482 | 1448.4 |
| 160.0 | 161.68 | 34.177 D | -0.504 C | 27.494 | 1448.5 |
| 161.0 | 162.67 | 34.187 D | -0.495 C | 27.502 | 1448.5 |
| 162.0 | 163.70 | 34.196 D | -0.487 C | 27.508 | 1448.6 |
| 163.0 | 164.71 | 34.204 D | -0.479 C | 27.515 | 1448.7 |
| 164.0 | 165.75 | 34.212 D | -0.471 C | 27.521 | 1448.7 |
| 165.0 | 166.75 | 34.221 D | -0.464 C | 27.528 | 1448.8 |
| 166.0 | 167.78 | 34.231 D | -0.451 C | 27.536 | 1448.9 |
| 167.0 | 168.78 | 34.242 D | -0.441 C | 27.544 | 1449.0 |
| 168.0 | 169.81 | 34.252 D | -0.435 C | 27.552 | 1449.0 |
| 169.0 | 170.81 | 34.260 D | -0.429 C | 27.558 | 1449.1 |
| 170.0 | 171.83 | 34.268 D | -0.421 C | 27.564 | 1449.2 |
| 171.0 | 172.81 | 34.274 D | -0.414 C | 27.569 | 1449.2 |
| 172.0 | 173.84 | 34.285 D | -0.406 C | 27.577 | 1449.3 |
| 173.0 | 174.83 | 34.293 D | -0.400 C | 27.583 | 1449.3 |
| 174.0 | 175.82 | 34.300 D | -0.393 C | 27.589 | 1449.4 |
| 175.0 | 176.82 | 34.308 D | -0.384 C | 27.594 | 1449.5 |
| 176.0 | 177.83 | 34.321 D | -0.372 C | 27.605 | 1449.6 |
| 177.0 | 178.85 | 34.331 D | -0.358 C | 27.612 | 1449.6 |
| 178.0 | 179.87 | 34.344 D | -0.348 C | 27.622 | 1449.7 |
| 179.0 | 180.88 | 34.352 D | -0.341 C | 27.628 | 1449.8 |
| 180.0 | 181.91 | 34.358 D | -0.335 C | 27.633 | 1449.8 |
| 181.0 | 182.94 | 34.363 D | -0.329 C | 27.637 | 1449.9 |
| 182.0 | 183.89 | 34.368 D | -0.324 C | 27.640 | 1449.9 |
| 183.0 | 184.96 | 34.374 D | -0.318 C | 27.645 | 1450.0 |
| 184.0 | 185.95 | 34.380 D | -0.313 C | 27.649 | 1450.0 |
| 185.0 | 186.97 | 34.384 D | -0.307 C | 27.652 | 1450.1 |
| 186.0 | 187.96 | 34.390 D | -0.303 C | 27.657 | 1450.1 |
| 187.0 | 188.97 | 34.395 D | -0.296 C | 27.661 | 1450.2 |
| 188.0 | 189.97 | 34.403 D | -0.288 C | 27.667 | 1450.3 |
| 189.0 | 190.96 | 34.410 D | -0.283 C | 27.672 | 1450.3 |
| 190.0 | 192.00 | 34.411 D | -0.280 C | 27.673 | 1450.3 |
| 191.0 | 193.00 | 34.416 D | -0.272 C | 27.677 | 1450.4 |
| 192.0 | 194.01 | 34.427 D | -0.261 C | 27.685 | 1450.5 |
| 193.0 | 195.03 | 34.428 D | -0.260 C | 27.686 | 1450.5 |
| 194.0 | 196.04 | 34.435 D | -0.253 C | 27.691 | 1450.6 |
| 195.0 | 197.05 | 34.439 D | -0.250 C | 27.694 | 1450.6 |
| 196.0 | 198.06 | 34.446 D | -0.241 C | 27.700 | 1450.7 |
| 197.0 | 199.07 | 34.450 D | -0.235 C | 27.702 | 1450.7 |
| 198.0 | 200.05 | 34.458 D | -0.228 C | 27.709 | 1450.8 |
| 199.0 | 201.09 | 34.459 D | -0.226 C | 27.709 | 1450.8 |
| 200.0 | 201.99 | 34.459 D | -0.225 C | 27.709 | 1450.8 |



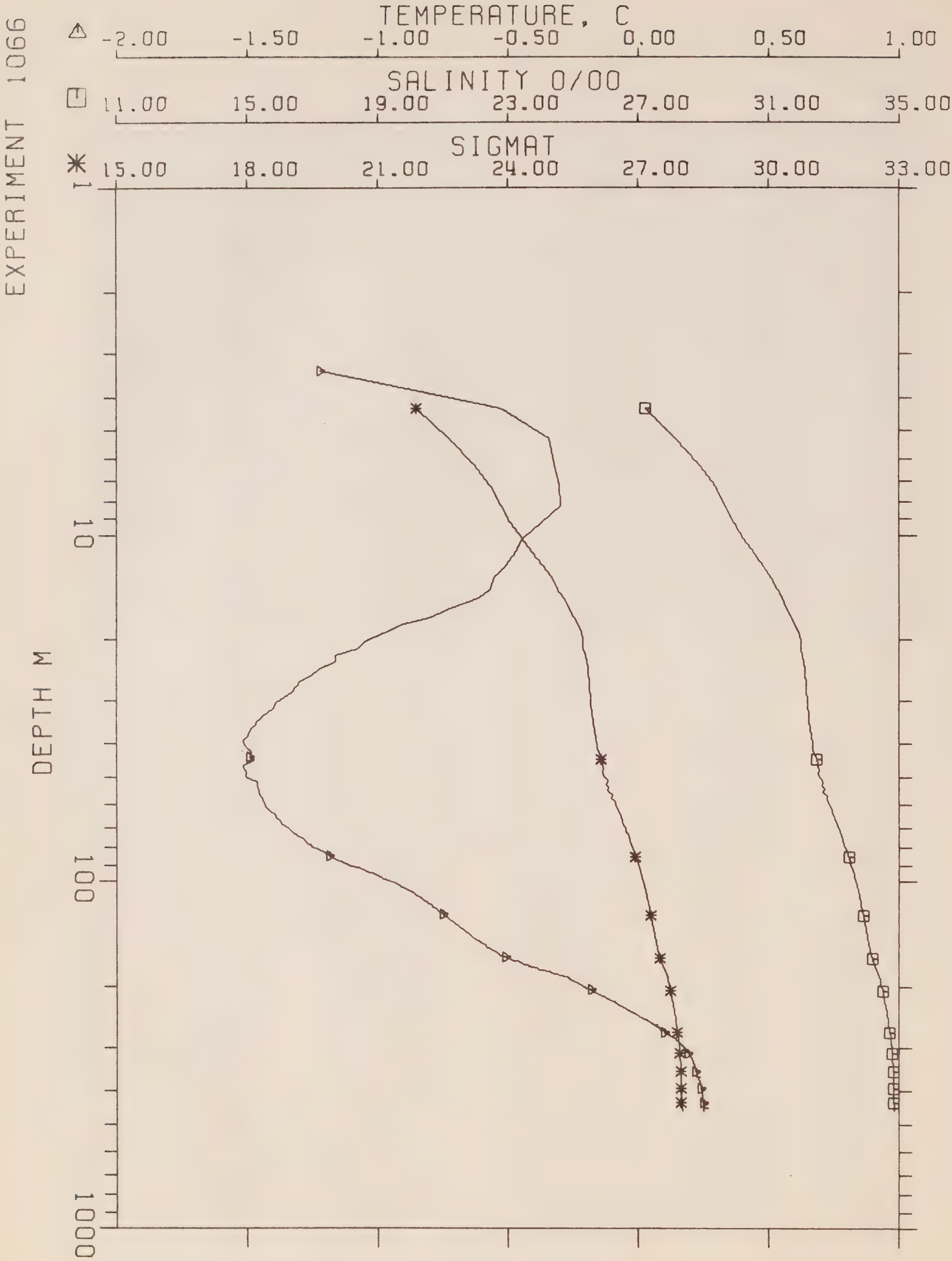
EXPERIMENT 1065
TEMPERATURE, C
-2.00
-1.50
-1.00
-0.50
0.00
0.50
1.00
SALINITY 0/00
11.00
15.00
19.00
23.00
27.00
31.00
35.00
SIGMAT
15.00
18.00
21.00
24.00
27.00
30.00
33.00
DEPTH M
1
10
100
1000

| CRUISE | D'IBERVILLE FIORD-75 | EXPER NO. 1065 |
|---|---|---|
| LAT N.80-35-30 | LONG W.78-06-00 | WATER DEPTH 168 |
| DEPTH INCR. | DATE 070475 | LOCAL TIME 1200 |

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 3.0 | 3.05 | | -1.125 D | | |
| 4.0 | 4.10 | 27.749 E | -0.968 D | 22.318 | 1434.8 |
| 5.0 | 5.10 | 28.671 E | -0.830 D | 23.060 | 1436.7 |
| 6.0 | 6.10 | 29.206 E | -0.585 D | 23.486 | 1438.6 |
| 7.0 | 7.10 | 29.488 E | -0.539 D | 23.712 | 1439.3 |
| 8.0 | 8.05 | 29.690 E | -0.452 D | 23.873 | 1440.0 |
| 9.0 | 9.00 | 29.945 E | -0.468 D | 24.078 | 1440.2 |
| 10.0 | 10.10 | 30.281 E | -0.550 D | 24.352 | 1440.3 |
| 11.0 | 11.05 | 30.474 E | -0.665 D | 24.511 | 1440.1 |
| 12.0 | 12.10 | 30.691 E | -0.751 D | 24.688 | 1440.0 |
| 13.0 | 13.05 | 30.933 E | -0.789 D | 24.885 | 1440.2 |
| 14.0 | 14.10 | 31.150 E | -0.907 D | 25.064 | 1440.0 |
| 15.0 | 15.10 | 31.332 E | -0.965 D | 25.212 | 1439.9 |
| 16.0 | 16.10 | 31.436 E | -1.012 D | 25.298 | 1439.9 |
| 17.0 | 17.15 | 31.554 E | -1.044 D | 25.394 | 1439.9 |
| 18.0 | 18.15 | 31.645 E | -1.114 D | 25.469 | 1439.7 |
| 19.0 | 19.15 | 31.728 E | -1.202 D | 25.538 | 1439.5 |
| 20.0 | 20.15 | 31.785 E | -1.215 D | 25.585 | 1439.5 |
| 21.0 | 21.15 | 31.829 E | -1.221 D | 25.621 | 1439.5 |
| 22.0 | 22.15 | 31.883 E | -1.249 D | 25.665 | 1439.5 |
| 23.0 | 23.15 | 31.917 E | -1.273 D | 25.693 | 1439.4 |
| 24.0 | 24.15 | 31.942 E | -1.295 D | 25.714 | 1439.4 |
| 25.0 | 25.10 | 31.970 E | -1.311 D | 25.737 | 1439.4 |
| 26.0 | 26.10 | 31.992 E | -1.322 D | 25.755 | 1439.4 |
| 27.0 | 27.10 | 32.018 E | -1.336 D | 25.777 | 1439.4 |
| 28.0 | 28.20 | 32.047 E | -1.369 D | 25.800 | 1439.3 |
| 29.0 | 29.20 | 32.071 E | -1.395 D | 25.821 | 1439.2 |
| 30.0 | 30.20 | 32.083 E | -1.412 D | 25.831 | 1439.1 |
| 31.0 | 31.20 | 32.113 E | -1.438 D | 25.856 | 1439.1 |
| 32.0 | 32.20 | 32.131 E | -1.456 D | 25.871 | 1439.0 |
| 33.0 | 33.20 | 32.150 E | -1.498 D | 25.887 | 1438.9 |
| 34.0 | 34.20 | 32.157 E | -1.490 D | 25.893 | 1438.9 |
| 35.0 | 35.20 | 32.174 E | -1.515 D | 25.907 | 1438.9 |
| 36.0 | 36.15 | 32.189 E | -1.527 D | 25.919 | 1438.8 |
| 37.0 | 37.15 | 32.198 E | -1.531 D | 25.926 | 1438.9 |
| 38.0 | 38.25 | 32.215 E | -1.541 D | 25.941 | 1438.8 |
| 39.0 | 39.30 | 32.236 E | -1.558 D | 25.958 | 1438.8 |
| 40.0 | 40.20 | 32.262 E | -1.564 D | 25.979 | 1438.8 |
| 41.0 | 41.20 | 32.280 E | -1.569 D | 25.994 | 1438.9 |
| 42.0 | 42.25 | 32.313 E | -1.579 D | 26.021 | 1438.9 |
| 43.0 | 43.25 | 32.334 E | -1.591 D | 26.038 | 1438.9 |
| 44.0 | 44.25 | 32.358 E | -1.590 D | 26.057 | 1438.9 |
| 45.0 | 45.20 | 32.387 E | -1.584 D | 26.081 | 1439.0 |
| 46.0 | 46.20 | 32.415 E | -1.587 D | 26.104 | 1439.0 |
| 47.0 | 47.25 | 32.440 E | -1.588 D | 26.124 | 1439.1 |
| 48.0 | 48.35 | 32.467 E | -1.587 D | 26.146 | 1439.1 |
| 49.0 | 49.25 | 32.509 E | -1.598 D | 26.180 | 1439.2 |
| 50.0 | 50.25 | 32.540 E | -1.598 D | 26.205 | 1439.2 |
| 51.0 | 51.25 | 32.582 E | -1.589 D | 26.239 | 1439.3 |
| 52.0 | 52.30 | 32.614 E | -1.592 D | 26.265 | 1439.4 |
| 53.0 | 53.35 | 32.640 E | -1.585 D | 26.285 | 1439.5 |
| 54.0 | 54.40 | 32.668 E | -1.585 D | 26.308 | 1439.5 |
| 55.0 | 55.35 | 32.700 E | -1.586 D | 26.334 | 1439.6 |
| 56.0 | 56.35 | 32.728 E | -1.579 D | 26.357 | 1439.7 |
| 57.0 | 57.30 | 32.768 E | -1.571 D | 26.389 | 1439.8 |
| 58.0 | 58.35 | 32.801 E | -1.563 D | 26.416 | 1439.9 |
| 59.0 | 59.40 | 32.830 E | -1.559 D | 26.439 | 1440.0 |
| 60.0 | 60.45 | 32.855 E | -1.557 D | 26.460 | 1440.0 |
| 61.0 | 61.45 | 32.883 E | -1.563 D | 26.482 | 1440.1 |
| 62.0 | 62.40 | 32.919 E | -1.559 D | 26.512 | 1440.1 |
| 63.0 | 63.45 | 32.951 E | -1.572 D | 26.537 | 1440.1 |
| 64.0 | 64.35 | 32.986 E | -1.559 D | 26.565 | 1440.3 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 65.0 | 65.35 | 33.012 E | -1.566 D | 26.587 | 1440.3 |
| 66.0 | 66.40 | 33.037 E | -1.565 D | 26.607 | 1440.4 |
| 67.0 | 67.45 | 33.062 E | -1.563 D | 26.627 | 1440.4 |
| 68.0 | 68.45 | 33.087 E | -1.552 D | 26.647 | 1440.5 |
| 69.0 | 69.45 | 33.124 E | -1.554 D | 26.677 | 1440.6 |
| 70.0 | 70.40 | 33.139 E | -1.552 D | 26.690 | 1440.6 |
| 71.0 | 71.40 | 33.152 E | -1.553 D | 26.700 | 1440.7 |
| 72.0 | 72.45 | 33.188 E | -1.565 D | 26.729 | 1440.7 |
| 73.0 | 73.40 | 33.205 E | -1.538 D | 26.743 | 1440.8 |
| 74.0 | 74.45 | 33.241 E | -1.556 D | 26.772 | 1440.8 |
| 75.0 | 75.45 | 33.266 E | -1.581 D | 26.793 | 1440.7 |
| 76.0 | 76.50 | 33.305 E | -1.586 D | 26.825 | 1440.8 |
| 77.0 | 77.55 | 33.317 E | -1.593 D | 26.835 | 1440.8 |
| 78.0 | 78.50 | 33.359 E | -1.619 D | 26.869 | 1440.7 |
| 79.0 | 79.50 | 33.375 E | -1.666 D | 26.833 | 1440.6 |
| 80.0 | 80.60 | 33.398 E | -1.686 D | 26.903 | 1440.5 |
| 81.0 | 81.65 | 33.413 E | -1.720 D | 26.916 | 1440.4 |
| 82.0 | 82.65 | 33.419 E | -1.697 D | 26.920 | 1440.5 |
| 83.0 | 83.65 | 33.438 E | -1.679 D | 26.935 | 1440.7 |
| 84.0 | 84.65 | 33.451 E | -1.635 D | 26.944 | 1440.9 |
| 85.0 | 85.65 | 33.466 E | -1.597 D | 26.956 | 1441.1 |
| 86.0 | 86.70 | 33.469 E | -1.571 D | 26.958 | 1441.3 |
| 87.0 | 87.65 | 33.493 E | -1.533 D | 26.976 | 1441.5 |
| 88.0 | 88.80 | 33.503 E | -1.477 D | 26.983 | 1441.8 |
| 89.0 | 89.80 | 33.517 E | -1.470 D | 26.994 | 1441.9 |
| 90.0 | 90.85 | 33.549 E | -1.409 D | 27.018 | 1442.2 |
| 91.0 | 91.85 | 33.555 E | -1.370 D | 27.022 | 1442.4 |
| 92.0 | 92.80 | 33.570 E | -1.357 D | 27.034 | 1442.5 |
| 93.0 | 93.85 | 33.577 E | -1.311 D | 27.038 | 1442.8 |
| 94.0 | 94.85 | 33.593 E | -1.227 D | 27.048 | 1443.2 |
| 95.0 | 95.85 | 33.617 E | -1.188 D | 27.067 | 1443.4 |
| 96.0 | 96.85 | 33.647 E | -1.220 D | 27.092 | 1443.3 |
| 97.0 | 97.85 | 33.663 E | -1.162 D | 27.103 | 1443.6 |
| 98.0 | 98.90 | 33.677 E | -1.173 D | 27.114 | 1443.6 |
| 99.0 | 99.90 | 33.693 E | -1.128 D | 27.126 | 1443.9 |
| 100.0 | 100.90 | 33.698 D | -1.108 C | 27.130 | 1444.0 |
| 101.0 | 101.90 | 33.707 D | -1.078 C | 27.136 | 1444.2 |
| 102.0 | 102.90 | 33.712 D | -1.062 C | 27.139 | 1444.3 |
| 103.0 | 103.95 | 33.724 D | -1.017 C | 27.148 | 1444.5 |
| 104.0 | 104.95 | 33.734 D | -0.985 C | 27.155 | 1444.7 |
| 105.0 | 105.95 | 33.748 D | -0.948 C | 27.165 | 1444.9 |
| 106.0 | 106.90 | 33.756 D | -0.923 C | 27.170 | 1445.0 |
| 107.0 | 107.95 | 33.769 D | -0.904 C | 27.180 | 1445.2 |
| 108.0 | 109.05 | 33.778 D | -0.904 C | 27.187 | 1445.2 |
| 109.0 | 110.10 | 33.788 D | -0.885 C | 27.194 | 1445.3 |
| 110.0 | 111.10 | 33.792 D | -0.850 C | 27.197 | 1445.5 |
| 111.0 | 112.10 | 33.805 D | -0.836 C | 27.207 | 1445.6 |
| 112.0 | 113.15 | 33.810 D | -0.831 C | 27.211 | 1445.6 |
| 113.0 | 114.15 | 33.822 D | -0.808 C | 27.219 | 1445.8 |
| 114.0 | 115.15 | 33.829 D | -0.799 C | 27.225 | 1445.9 |
| 115.0 | 116.20 | 33.837 D | -0.792 C | 27.231 | 1445.9 |
| 116.0 | 117.20 | 33.843 D | -0.791 C | 27.236 | 1445.9 |
| 117.0 | 118.25 | 33.850 D | -0.784 C | 27.241 | 1446.0 |
| 118.0 | 119.20 | 33.856 D | -0.772 C | 27.246 | 1446.1 |
| 119.0 | 120.25 | 33.863 D | -0.766 C | 27.251 | 1446.1 |
| 120.0 | 121.25 | 33.867 D | -0.760 C | 27.254 | 1446.2 |
| 121.0 | 122.25 | 33.873 D | -0.755 C | 27.258 | 1446.2 |
| 122.0 | 123.25 | 33.880 D | -0.750 C | 27.264 | 1446.3 |
| 123.0 | 124.25 | 33.888 D | -0.741 C | 27.270 | 1446.4 |
| 124.0 | 125.30 | 33.896 D | -0.733 C | 27.277 | 1446.4 |
| 125.0 | 126.35 | 33.905 D | -0.726 C | 27.283 | 1446.5 |
| 126.0 | 127.35 | 33.913 D | -0.720 C | 27.289 | 1446.5 |
| 127.0 | 128.35 | 33.920 D | -0.714 C | 27.295 | 1446.6 |
| 128.0 | 129.40 | 33.925 D | -0.710 C | 27.299 | 1446.6 |
| 129.0 | 130.40 | 33.928 D | -0.704 C | 27.301 | 1446.7 |
| 130.0 | 131.45 | 33.934 D | -0.699 C | 27.306 | 1446.7 |
| 131.0 | 132.45 | 33.942 D | -0.694 C | 27.312 | 1446.8 |
| 132.0 | 133.45 | 33.946 D | -0.690 C | 27.315 | 1446.8 |
| 133.0 | 134.50 | 33.951 D | -0.685 C | 27.319 | 1446.9 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 134.0 | 135.50 | 33.959 D | -0.630 C | 27.325 | 1446.9 |
| 135.0 | 136.50 | 33.968 D | -0.671 C | 27.332 | 1447.0 |
| 136.0 | 137.50 | 33.976 D | -0.662 C | 27.338 | 1447.1 |
| 137.0 | 138.50 | 33.985 D | -0.655 C | 27.346 | 1447.1 |
| 138.0 | 139.50 | 33.994 D | -0.649 C | 27.352 | 1447.2 |
| 139.0 | 140.50 | 34.000 D | -0.643 C | 27.357 | 1447.2 |
| 140.0 | 141.50 | 34.008 D | -0.638 C | 27.363 | 1447.3 |
| 141.0 | 142.60 | 34.017 D | -0.631 C | 27.370 | 1447.4 |
| 142.0 | 143.60 | 34.025 D | -0.623 C | 27.376 | 1447.4 |
| 143.0 | 144.65 | 34.033 D | -0.616 C | 27.382 | 1447.5 |
| 144.0 | 145.60 | 34.040 D | -0.607 C | 27.388 | 1447.5 |
| 145.0 | 146.60 | 34.046 D | -0.503 C | 27.393 | 1447.6 |
| 146.0 | 147.60 | 34.053 D | -0.598 C | 27.398 | 1447.6 |
| 147.0 | 148.60 | 34.056 D | -0.596 C | 27.400 | 1447.7 |
| 148.0 | 149.60 | 34.065 D | -0.590 C | 27.407 | 1447.7 |
| 149.0 | 150.70 | 34.070 D | -0.583 C | 27.411 | 1447.8 |
| 150.0 | 151.70 | 34.080 D | -0.576 C | 27.419 | 1447.8 |
| 151.0 | 152.70 | 34.087 D | -0.570 C | 27.424 | 1447.9 |
| 152.0 | 153.70 | 34.093 D | -0.563 C | 27.429 | 1448.0 |
| 153.0 | 154.70 | 34.104 D | -0.554 C | 27.437 | 1448.0 |
| 154.0 | 155.70 | 34.112 D | -0.546 C | 27.443 | 1448.1 |
| 155.0 | 156.75 | 34.118 D | -0.541 C | 27.448 | 1448.1 |
| 156.0 | 157.80 | 34.125 D | -0.536 C | 27.454 | 1448.2 |
| 157.0 | 158.75 | 34.132 D | -0.528 C | 27.459 | 1448.3 |
| 158.0 | 159.75 | 34.141 D | -0.519 C | 27.466 | 1448.3 |
| 159.0 | 160.80 | 34.150 D | -0.510 C | 27.473 | 1448.4 |
| 160.0 | 161.80 | 34.164 D | -0.499 C | 27.484 | 1448.5 |
| 161.0 | 162.85 | 34.178 D | -0.489 C | 27.494 | 1448.6 |
| 162.0 | 163.80 | 34.185 D | -0.480 C | 27.500 | 1448.6 |
| 163.0 | 164.85 | 34.193 D | -0.474 C | 27.506 | 1448.7 |
| 164.0 | 165.90 | 34.199 D | -0.466 C | 27.510 | 1448.8 |
| 165.0 | 166.95 | 34.212 D | -0.456 C | 27.520 | 1448.8 |


EXPERIMENT 1066
TEMPERATURE, C
-2.00
-1.50
-1.00
-0.50
0.00
0.50
1.00
SALINITY 0/00
11.00
15.00
19.00
23.00
27.00
31.00
35.00
SIGMAT
15.00
18.00
21.00
24.00
27.00
30.00
33.00
DEPTH M
1
10
100
1000

| | | |
|---|---|---|
| CRUISE | D'IBERVILLE FIORD-75 | EXPER NO. 1066 |
| LAT N.80-35-10 | LONG W.80-16-00 | WATER DEPTH 500 |
| DEPTH INCR. | DATE 080475 | LOCAL TIME 1600 |

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 3.0 | 3.34 | | -1.220 D | | |
| 4.0 | 4.28 | 27.254 E | -0.524 D | 21.911 | 1436.2 |
| 5.0 | 5.25 | 28.158 E | -0.338 D | 22.635 | 1438.3 |
| 6.0 | 6.22 | 28.896 E | -0.318 D | 23.229 | 1439.5 |
| 7.0 | 7.24 | 29.384 E | -0.301 D | 23.621 | 1440.2 |
| 8.0 | 8.24 | 29.683 E | -0.296 D | 23.863 | 1440.7 |
| 9.0 | 9.21 | 29.944 E | -0.368 D | 24.074 | 1440.7 |
| 10.0 | 10.23 | 30.248 E | -0.442 D | 24.322 | 1440.8 |
| 11.0 | 11.23 | 30.563 E | -0.468 D | 24.577 | 1441.1 |
| 12.0 | 12.25 | 30.838 E | -0.503 D | 24.800 | 1441.4 |
| 13.0 | 13.25 | 31.098 E | -0.551 D | 25.011 | 1441.5 |
| 14.0 | 14.24 | 31.275 E | -0.565 D | 25.154 | 1441.7 |
| 15.0 | 15.24 | 31.424 E | -0.610 D | 25.276 | 1441.7 |
| 16.0 | 16.24 | 31.579 E | -0.722 D | 25.404 | 1441.5 |
| 17.0 | 17.23 | 31.719 E | -0.802 D | 25.520 | 1441.3 |
| 18.0 | 18.26 | 31.838 E | -0.915 D | 25.620 | 1440.9 |
| 19.0 | 19.24 | 31.942 E | -0.974 D | 25.705 | 1440.8 |
| 20.0 | 20.24 | 31.984 E | -1.047 D | 25.741 | 1440.6 |
| 21.0 | 21.23 | 32.000 E | -1.075 D | 25.755 | 1440.5 |
| 22.0 | 22.25 | 32.040 E | -1.162 D | 25.790 | 1440.1 |
| 23.0 | 23.26 | 32.087 E | -1.158 D | 25.828 | 1440.2 |
| 24.0 | 24.25 | 32.130 E | -1.220 D | 25.864 | 1440.0 |
| 25.0 | 25.27 | 32.140 E | -1.251 D | 25.873 | 1439.9 |
| 26.0 | 26.32 | 32.146 E | -1.293 D | 25.879 | 1439.7 |
| 27.0 | 27.35 | 32.152 E | -1.310 D | 25.884 | 1439.7 |
| 28.0 | 28.31 | 32.170 E | -1.326 D | 25.899 | 1439.6 |
| 29.0 | 29.31 | 32.186 E | -1.356 D | 25.912 | 1439.5 |
| 30.0 | 30.30 | 32.201 E | -1.384 D | 25.925 | 1439.4 |
| 31.0 | 31.28 | 32.209 E | -1.396 D | 25.932 | 1439.4 |
| 32.0 | 32.26 | 32.222 E | -1.415 D | 25.943 | 1439.4 |
| 33.0 | 33.28 | 32.238 E | -1.438 D | 25.957 | 1439.3 |
| 34.0 | 34.27 | 32.252 E | -1.457 D | 25.969 | 1439.2 |
| 35.0 | 35.30 | 32.269 E | -1.471 D | 25.983 | 1439.2 |
| 36.0 | 36.32 | 32.285 E | -1.486 D | 25.996 | 1439.2 |
| 37.0 | 37.36 | 32.310 E | -1.491 D | 26.016 | 1439.2 |
| 38.0 | 38.34 | 32.331 E | -1.501 D | 26.034 | 1439.2 |
| 39.0 | 39.38 | 32.349 E | -1.515 D | 26.048 | 1439.2 |
| 40.0 | 40.38 | 32.370 E | -1.510 D | 26.066 | 1439.2 |
| 41.0 | 41.38 | 32.377 E | -1.495 D | 26.070 | 1439.3 |
| 42.0 | 42.39 | 32.399 E | -1.480 D | 26.088 | 1439.5 |
| 43.0 | 43.39 | 32.469 E | -1.488 D | 26.145 | 1439.5 |
| 44.0 | 44.40 | 32.480 E | -1.470 D | 26.154 | 1439.7 |
| 45.0 | 45.40 | 32.514 E | -1.502 D | 26.182 | 1439.6 |
| 46.0 | 46.41 | 32.539 E | -1.514 D | 26.202 | 1439.6 |
| 47.0 | 47.43 | 32.571 E | -1.509 D | 26.228 | 1439.6 |
| 48.0 | 48.43 | 32.523 E | -1.498 D | 26.189 | 1439.6 |
| 49.0 | 49.42 | 32.545 E | -1.505 D | 26.207 | 1439.7 |
| 50.0 | 50.43 | 32.646 E | -1.491 D | 26.288 | 1439.9 |
| 51.0 | 51.45 | 32.674 E | -1.461 D | 26.310 | 1440.1 |
| 52.0 | 52.44 | 32.629 E | -1.461 D | 26.274 | 1440.0 |
| 53.0 | 53.45 | 32.705 E | -1.461 D | 26.336 | 1440.2 |
| 54.0 | 54.47 | 32.689 E | -1.456 D | 26.322 | 1440.2 |
| 55.0 | 55.47 | 32.732 E | -1.457 D | 26.357 | 1440.3 |
| 56.0 | 56.48 | 32.813 E | -1.449 D | 26.423 | 1440.4 |
| 57.0 | 57.48 | 32.802 E | -1.441 D | 26.414 | 1440.5 |
| 58.0 | 58.49 | 32.850 E | -1.440 D | 26.452 | 1440.5 |
| 59.0 | 59.52 | 32.891 E | -1.434 D | 26.486 | 1440.7 |
| 60.0 | 60.52 | 32.915 E | -1.429 D | 26.505 | 1440.7 |
| 61.0 | 61.51 | 32.942 E | -1.419 D | 26.526 | 1440.8 |
| 62.0 | 62.52 | 32.975 E | -1.410 D | 26.553 | 1440.9 |
| 63.0 | 63.53 | 33.007 E | -1.397 D | 26.578 | 1441.1 |
| 64.0 | 64.55 | 33.037 E | -1.390 D | 26.602 | 1441.1 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 65.0 | 65.54 | 33.057 E | -1.383 D | 26.619 | 1441.2 |
| 66.0 | 66.56 | 33.078 E | -1.377 D | 26.636 | 1441.3 |
| 67.0 | 67.56 | 33.102 E | -1.370 D | 26.655 | 1441.4 |
| 68.0 | 68.58 | 33.130 E | -1.357 D | 26.677 | 1441.5 |
| 69.0 | 69.58 | 33.158 E | -1.347 D | 26.699 | 1441.6 |
| 70.0 | 70.61 | 33.182 E | -1.334 D | 26.719 | 1441.7 |
| 71.0 | 71.59 | 33.207 E | -1.325 D | 26.738 | 1441.8 |
| 72.0 | 72.61 | 33.230 E | -1.313 D | 26.757 | 1441.9 |
| 73.0 | 73.62 | 33.253 E | -1.303 D | 26.775 | 1442.0 |
| 74.0 | 74.66 | 33.279 E | -1.291 D | 26.796 | 1442.1 |
| 75.0 | 75.66 | 33.299 E | -1.279 D | 26.812 | 1442.2 |
| 76.0 | 76.65 | 33.321 E | -1.268 D | 26.829 | 1442.3 |
| 77.0 | 77.66 | 33.338 E | -1.259 D | 26.843 | 1442.4 |
| 78.0 | 78.68 | 33.354 E | -1.254 D | 26.856 | 1442.5 |
| 79.0 | 79.69 | 33.372 E | -1.240 D | 26.870 | 1442.6 |
| 80.0 | 80.65 | 33.397 E | -1.224 D | 26.889 | 1442.7 |
| 81.0 | 81.68 | 33.420 E | -1.210 D | 26.908 | 1442.8 |
| 82.0 | 82.69 | 33.438 E | -1.194 D | 26.922 | 1442.9 |
| 83.0 | 83.71 | 33.457 E | -1.184 D | 26.937 | 1443.0 |
| 84.0 | 84.69 | 33.474 E | -1.177 D | 26.950 | 1443.1 |
| 85.0 | 85.71 | 33.490 E | -1.171 D | 26.963 | 1443.2 |
| 86.0 | 86.70 | 33.503 E | -1.147 D | 26.973 | 1443.3 |
| 87.0 | 87.72 | 33.522 E | -1.129 D | 26.988 | 1443.4 |
| 88.0 | 88.74 | 33.539 E | -1.114 D | 27.001 | 1443.5 |
| 89.0 | 89.76 | 33.560 E | -1.093 D | 27.018 | 1443.7 |
| 90.0 | 90.79 | 33.578 E | -1.077 D | 27.032 | 1443.8 |
| 91.0 | 91.77 | 33.589 E | -1.060 D | 27.040 | 1443.9 |
| 92.0 | 92.80 | 33.605 E | -1.044 D | 27.052 | 1444.0 |
| 93.0 | 93.81 | 33.620 E | -1.027 D | 27.064 | 1444.2 |
| 94.0 | 94.79 | 33.632 E | -1.010 D | 27.073 | 1444.3 |
| 95.0 | 95.83 | 33.646 E | -0.999 D | 27.084 | 1444.4 |
| 96.0 | 96.81 | 33.656 E | -0.987 D | 27.091 | 1444.4 |
| 97.0 | 97.79 | 33.668 E | -0.974 D | 27.101 | 1444.5 |
| 98.0 | 98.81 | 33.683 E | -0.958 D | 27.113 | 1444.6 |
| 99.0 | 99.82 | 33.697 E | -0.945 D | 27.123 | 1444.7 |
| 100.0 | 100.81 | 33.707 D | -0.932 C | 27.131 | 1444.8 |
| 101.0 | 101.83 | 33.720 D | -0.921 C | 27.141 | 1444.9 |
| 102.0 | 102.86 | 33.731 D | -0.909 C | 27.149 | 1445.0 |
| 103.0 | 103.88 | 33.742 D | -0.896 C | 27.158 | 1445.1 |
| 104.0 | 104.89 | 33.752 D | -0.885 C | 27.166 | 1445.2 |
| 105.0 | 105.88 | 33.763 D | -0.875 C | 27.175 | 1445.3 |
| 106.0 | 106.90 | 33.775 D | -0.867 C | 27.184 | 1445.3 |
| 107.0 | 107.89 | 33.782 D | -0.859 C | 27.189 | 1445.4 |
| 108.0 | 108.92 | 33.792 D | -0.853 C | 27.197 | 1445.5 |
| 109.0 | 109.93 | 33.798 D | -0.843 C | 27.201 | 1445.5 |
| 110.0 | 110.93 | 33.809 D | -0.836 C | 27.210 | 1445.6 |
| 111.0 | 111.94 | 33.816 D | -0.830 C | 27.216 | 1445.6 |
| 112.0 | 112.96 | 33.826 D | -0.824 C | 27.223 | 1445.7 |
| 113.0 | 113.95 | 33.833 D | -0.815 C | 27.229 | 1445.8 |
| 114.0 | 114.96 | 33.841 D | -0.808 C | 27.235 | 1445.8 |
| 115.0 | 115.97 | 33.848 D | -0.800 C | 27.240 | 1445.9 |
| 116.0 | 116.97 | 33.858 D | -0.795 C | 27.248 | 1445.9 |
| 117.0 | 118.01 | 33.867 D | -0.789 C | 27.255 | 1446.0 |
| 118.0 | 119.01 | 33.873 D | -0.780 C | 27.259 | 1446.1 |
| 119.0 | 120.03 | 33.881 D | -0.773 C | 27.265 | 1446.1 |
| 120.0 | 121.04 | 33.887 D | -0.768 C | 27.270 | 1446.2 |
| 121.0 | 122.05 | 33.895 D | -0.762 C | 27.277 | 1446.2 |
| 122.0 | 123.05 | 33.900 D | -0.755 C | 27.281 | 1446.3 |
| 123.0 | 124.08 | 33.907 D | -0.749 C | 27.286 | 1446.3 |
| 124.0 | 125.10 | 33.918 D | -0.744 C | 27.295 | 1446.4 |
| 125.0 | 126.10 | 33.924 D | -0.735 C | 27.299 | 1446.5 |
| 126.0 | 127.11 | 33.933 D | -0.729 C | 27.306 | 1446.5 |
| 127.0 | 128.13 | 33.940 D | -0.723 C | 27.312 | 1446.6 |
| 128.0 | 129.12 | 33.948 D | -0.716 C | 27.318 | 1446.6 |
| 129.0 | 130.14 | 33.954 D | -0.711 C | 27.322 | 1446.7 |
| 130.0 | 131.12 | 33.961 D | -0.706 C | 27.328 | 1446.7 |
| 131.0 | 132.13 | 33.968 D | -0.699 C | 27.333 | 1446.8 |
| 132.0 | 133.16 | 33.974 D | -0.693 C | 27.338 | 1446.8 |
| 133.0 | 134.15 | 33.982 D | -0.688 C | 27.344 | 1446.9 |

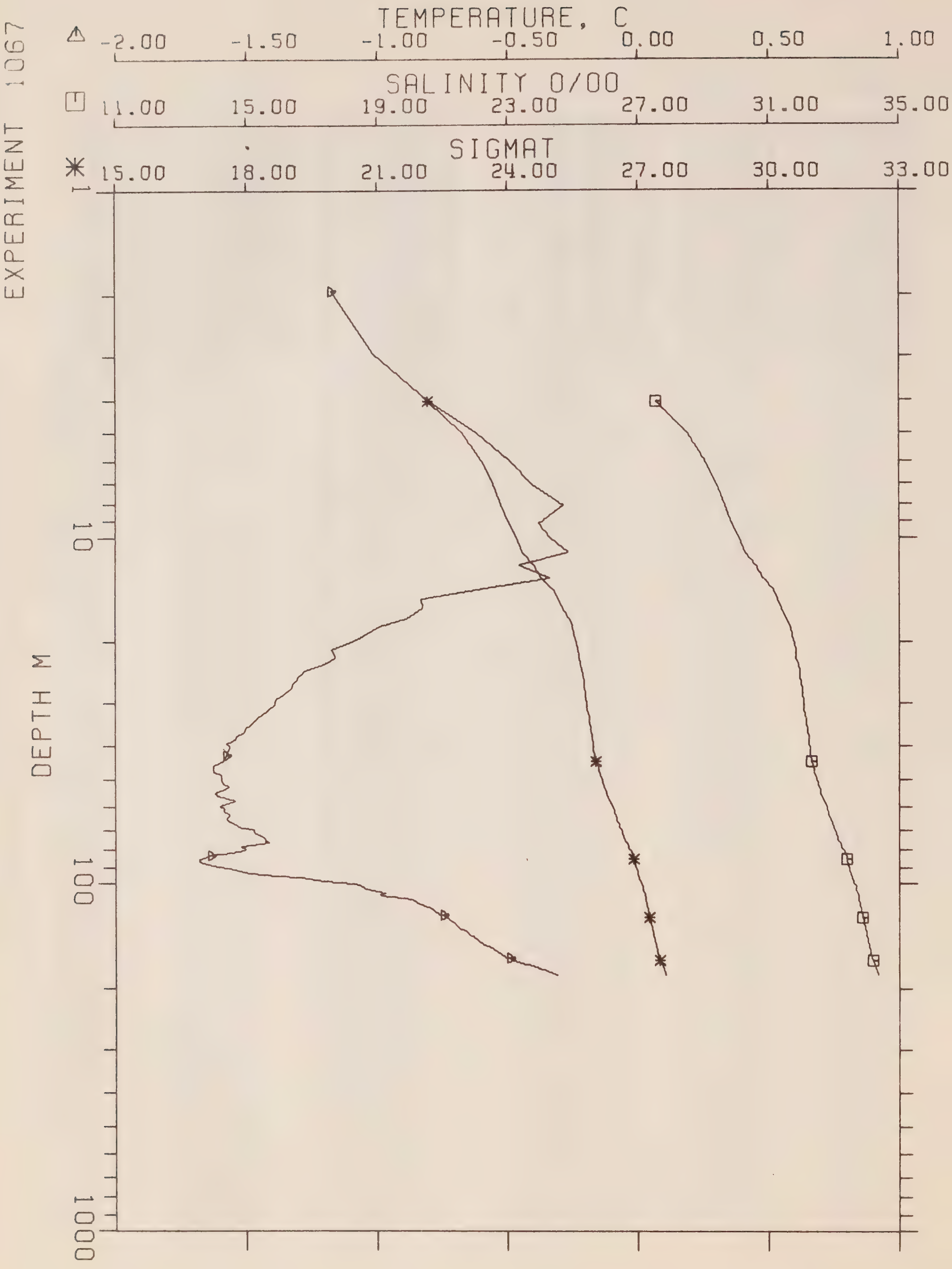
| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 134.0 | 135.20 | 33.988 D | -0.684 C | 27.349 | 1446.9 |
| 135.0 | 136.19 | 33.996 D | -0.677 C | 27.355 | 1447.0 |
| 136.0 | 137.23 | 34.004 D | -0.669 C | 27.361 | 1447.1 |
| 137.0 | 138.24 | 34.012 D | -0.666 C | 27.367 | 1447.1 |
| 138.0 | 139.25 | 34.016 D | -0.662 C | 27.370 | 1447.2 |
| 139.0 | 140.23 | 34.023 D | -0.654 C | 27.376 | 1447.2 |
| 140.0 | 141.27 | 34.029 D | -0.649 C | 27.380 | 1447.3 |
| 141.0 | 142.28 | 34.037 D | -0.645 C | 27.387 | 1447.3 |
| 142.0 | 143.28 | 34.041 D | -0.640 C | 27.390 | 1447.4 |
| 143.0 | 144.28 | 34.047 D | -0.634 C | 27.394 | 1447.4 |
| 144.0 | 145.28 | 34.051 D | -0.628 C | 27.397 | 1447.5 |
| 145.0 | 146.27 | 34.058 D | -0.623 C | 27.403 | 1447.5 |
| 146.0 | 147.30 | 34.066 D | -0.615 C | 27.409 | 1447.6 |
| 147.0 | 148.33 | 34.073 D | -0.608 C | 27.415 | 1447.6 |
| 148.0 | 149.36 | 34.082 D | -0.602 C | 27.421 | 1447.7 |
| 149.0 | 150.37 | 34.089 D | -0.596 C | 27.427 | 1447.7 |
| 150.0 | 151.37 | 34.095 D | -0.590 C | 27.431 | 1447.8 |
| 151.0 | 152.39 | 34.098 D | -0.587 C | 27.434 | 1447.8 |
| 152.0 | 153.39 | 34.101 D | -0.583 C | 27.436 | 1447.9 |
| 153.0 | 154.39 | 34.109 D | -0.576 C | 27.442 | 1447.9 |
| 154.0 | 155.40 | 34.115 D | -0.569 C | 27.446 | 1448.0 |
| 155.0 | 156.41 | 34.122 D | -0.563 C | 27.452 | 1448.0 |
| 156.0 | 157.44 | 34.130 D | -0.556 C | 27.458 | 1448.1 |
| 157.0 | 158.44 | 34.138 D | -0.550 C | 27.465 | 1448.2 |
| 158.0 | 159.45 | 34.144 D | -0.547 C | 27.469 | 1448.2 |
| 159.0 | 160.48 | 34.150 D | -0.539 C | 27.474 | 1448.3 |
| 160.0 | 161.49 | 34.155 D | -0.533 C | 27.478 | 1448.3 |
| 161.0 | 162.47 | 34.164 D | -0.527 C | 27.485 | 1448.4 |
| 162.0 | 163.50 | 34.173 D | -0.518 C | 27.491 | 1448.4 |
| 163.0 | 164.51 | 34.181 D | -0.511 C | 27.498 | 1448.5 |
| 164.0 | 165.54 | 34.188 D | -0.503 C | 27.503 | 1448.6 |
| 165.0 | 166.53 | 34.199 D | -0.495 C | 27.512 | 1448.6 |
| 166.0 | 167.56 | 34.210 D | -0.485 C | 27.520 | 1448.7 |
| 167.0 | 168.54 | 34.220 D | -0.475 C | 27.528 | 1448.8 |
| 168.0 | 169.56 | 34.233 D | -0.463 C | 27.538 | 1448.9 |
| 169.0 | 170.57 | 34.245 D | -0.452 C | 27.547 | 1449.0 |
| 170.0 | 171.55 | 34.255 D | -0.443 C | 27.554 | 1449.0 |
| 171.0 | 172.57 | 34.268 D | -0.434 C | 27.564 | 1449.1 |
| 172.0 | 173.59 | 34.274 D | -0.426 C | 27.569 | 1449.2 |
| 173.0 | 174.58 | 34.283 D | -0.418 C | 27.576 | 1449.2 |
| 174.0 | 175.59 | 34.295 D | -0.405 C | 27.585 | 1449.3 |
| 175.0 | 176.59 | 34.305 D | -0.392 C | 27.593 | 1449.4 |
| 176.0 | 177.59 | 34.315 D | -0.384 C | 27.600 | 1449.5 |
| 177.0 | 178.61 | 34.325 D | -0.375 C | 27.608 | 1449.6 |
| 178.0 | 179.62 | 34.337 D | -0.364 C | 27.617 | 1449.6 |
| 179.0 | 180.66 | 34.351 D | -0.348 C | 27.628 | 1449.8 |
| 180.0 | 181.66 | 34.358 D | -0.337 C | 27.633 | 1449.8 |
| 181.0 | 182.69 | 34.368 D | -0.330 C | 27.641 | 1449.9 |
| 182.0 | 183.73 | 34.375 D | -0.321 C | 27.646 | 1450.0 |
| 183.0 | 184.72 | 34.385 D | -0.309 C | 27.653 | 1450.0 |
| 184.0 | 185.74 | 34.395 D | -0.298 C | 27.661 | 1450.1 |
| 185.0 | 186.71 | 34.405 D | -0.287 C | 27.668 | 1450.2 |
| 186.0 | 187.73 | 34.414 D | -0.275 C | 27.675 | 1450.3 |
| 187.0 | 188.73 | 34.423 D | -0.265 C | 27.682 | 1450.4 |
| 188.0 | 189.74 | 34.427 D | -0.264 C | 27.686 | 1450.4 |
| 189.0 | 190.74 | 34.430 D | -0.259 C | 27.688 | 1450.4 |
| 190.0 | 191.73 | 34.425 D | -0.255 C | 27.683 | 1450.5 |
| 191.0 | 192.78 | 34.440 D | -0.248 C | 27.695 | 1450.5 |
| 192.0 | 193.81 | 34.445 D | -0.241 C | 27.699 | 1450.6 |
| 193.0 | 194.82 | 34.450 D | -0.235 C | 27.702 | 1450.6 |
| 194.0 | 195.87 | 34.454 D | -0.232 C | 27.705 | 1450.7 |
| 195.0 | 196.85 | 34.457 D | -0.226 C | 27.708 | 1450.7 |
| 196.0 | 197.84 | 34.459 D | -0.221 C | 27.709 | 1450.8 |
| 197.0 | 198.83 | 34.463 D | -0.215 C | 27.712 | 1450.8 |
| 198.0 | 199.86 | 34.464 D | -0.210 C | 27.712 | 1450.9 |
| 199.0 | 200.84 | 34.464 D | -0.206 C | 27.713 | 1450.9 |
| 200.0 | 201.85 | 34.524 D | -0.200 C | 27.761 | 1451.0 |
| 201.0 | 202.88 | 34.516 D | -0.193 C | 27.754 | 1451.1 |
| 202.0 | 203.90 | 34.508 D | -0.186 C | 27.747 | 1451.1 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 203.0 | 204.93 | 34.511 D | -0.181 C | 27.749 | 1451.1 |
| 204.0 | 205.94 | 34.505 D | -0.174 C | 27.744 | 1451.2 |
| 205.0 | 206.95 | 34.508 D | -0.170 C | 27.746 | 1451.2 |
| 206.0 | 207.94 | 34.510 D | -0.166 C | 27.748 | 1451.3 |
| 207.0 | 208.92 | 34.515 D | -0.161 C | 27.751 | 1451.3 |
| 208.0 | 209.94 | 34.520 D | -0.154 C | 27.755 | 1451.4 |
| 209.0 | 210.95 | 34.526 D | -0.149 C | 27.760 | 1451.4 |
| 210.0 | 211.99 | 34.527 D | -0.143 C | 27.760 | 1451.5 |
| 211.0 | 213.03 | 34.534 D | -0.137 C | 27.765 | 1451.5 |
| 212.0 | 214.02 | 34.540 D | -0.129 C | 27.770 | 1451.6 |
| 213.0 | 215.06 | 34.546 D | -0.123 C | 27.774 | 1451.6 |
| 214.0 | 216.03 | 34.549 D | -0.121 C | 27.777 | 1451.7 |
| 215.0 | 217.03 | 34.552 D | -0.115 C | 27.779 | 1451.7 |
| 216.0 | 218.04 | 34.558 D | -0.109 C | 27.784 | 1451.8 |
| 217.0 | 219.08 | 34.560 D | -0.104 C | 27.785 | 1451.8 |
| 218.0 | 220.10 | 34.565 D | -0.098 C | 27.789 | 1451.8 |
| 219.0 | 221.12 | 34.571 D | -0.091 C | 27.793 | 1451.9 |
| 220.0 | 222.12 | 34.576 D | -0.088 C | 27.797 | 1451.9 |
| 221.0 | 223.07 | 34.579 D | -0.084 C | 27.800 | 1452.0 |
| 222.0 | 224.10 | 34.583 D | -0.080 C | 27.802 | 1452.0 |
| 248.0 | 250.40 | 34.672 D | 0.036 C | 27.868 | 1453.1 |
| 249.0 | 251.39 | 34.675 D | 0.041 C | 27.871 | 1453.1 |
| 250.0 | 252.41 | 34.676 D | 0.044 C | 27.871 | 1453.2 |
| 251.0 | 253.39 | 34.682 D | 0.047 C | 27.875 | 1453.2 |
| 252.0 | 254.46 | 34.682 D | 0.049 C | 27.876 | 1453.2 |
| 253.0 | 255.46 | 34.685 D | 0.052 C | 27.878 | 1453.3 |
| 254.0 | 256.53 | 34.689 D | 0.055 C | 27.881 | 1453.3 |
| 255.0 | 257.47 | 34.690 D | 0.059 C | 27.882 | 1453.3 |
| 256.0 | 258.46 | 34.681 D | 0.076 C | 27.874 | 1453.4 |
| 257.0 | 259.55 | 34.697 D | 0.065 C | 27.887 | 1453.4 |
| 258.0 | 260.48 | 34.694 D | 0.072 C | 27.884 | 1453.5 |
| 259.0 | 261.52 | 34.709 D | 0.076 C | 27.896 | 1453.5 |
| 260.0 | 262.50 | 34.702 D | 0.078 C | 27.890 | 1453.5 |
| 261.0 | 263.53 | 34.708 D | 0.078 C | 27.895 | 1453.6 |
| 262.0 | 264.54 | 34.715 D | 0.081 C | 27.900 | 1453.6 |
| 263.0 | 265.60 | 34.715 D | 0.085 C | 27.900 | 1453.6 |
| 264.0 | 266.57 | 34.717 D | 0.087 C | 27.902 | 1453.7 |
| 265.0 | 267.69 | 34.723 D | 0.094 C | 27.907 | 1453.7 |
| 266.0 | 268.66 | 34.724 D | 0.098 C | 27.907 | 1453.8 |
| 267.0 | 269.60 | 34.725 D | 0.101 C | 27.908 | 1453.8 |
| 268.0 | 270.64 | 34.726 D | 0.101 C | 27.908 | 1453.8 |
| 269.0 | 271.65 | 34.727 D | 0.104 C | 27.909 | 1453.8 |
| 270.0 | 272.67 | 34.736 D | 0.107 C | 27.916 | 1453.9 |
| 271.0 | 273.69 | 34.731 D | 0.115 C | 27.912 | 1453.9 |
| 272.0 | 274.70 | 34.732 D | 0.119 C | 27.913 | 1454.0 |
| 273.0 | 275.70 | 34.744 D | 0.116 C | 27.922 | 1454.0 |
| 274.0 | 276.70 | 34.743 D | 0.121 C | 27.921 | 1454.0 |
| 275.0 | 277.70 | 34.748 D | 0.127 C | 27.925 | 1454.1 |
| 276.0 | 278.78 | 34.750 D | 0.129 C | 27.926 | 1454.1 |
| 277.0 | 279.72 | 34.751 D | 0.132 C | 27.927 | 1454.1 |
| 278.0 | 280.72 | 34.752 D | 0.134 C | 27.928 | 1454.2 |
| 279.0 | 281.73 | 34.754 D | 0.138 C | 27.929 | 1454.2 |
| 280.0 | 282.75 | 34.753 D | 0.145 C | 27.928 | 1454.2 |
| 281.0 | 283.80 | 34.762 D | 0.143 C | 27.935 | 1454.3 |
| 282.0 | 284.80 | 34.764 D | 0.146 C | 27.937 | 1454.3 |
| 283.0 | 285.79 | 34.766 D | 0.148 C | 27.938 | 1454.3 |
| 284.0 | 286.83 | 34.763 D | 0.152 C | 27.935 | 1454.4 |
| 285.0 | 287.81 | 34.766 D | 0.153 C | 27.938 | 1454.4 |
| 286.0 | 288.81 | 34.765 D | 0.157 C | 27.937 | 1454.4 |
| 287.0 | 289.84 | 34.771 D | 0.156 C | 27.942 | 1454.4 |
| 288.0 | 290.85 | 34.773 D | 0.158 C | 27.943 | 1454.5 |
| 289.0 | 292.03 | 34.773 D | 0.160 C | 27.943 | 1454.5 |
| 290.0 | 292.84 | 34.775 D | 0.161 C | 27.944 | 1454.5 |
| 291.0 | 293.86 | 34.780 D | 0.165 C | 27.949 | 1454.6 |
| 292.0 | 294.89 | 34.771 D | 0.170 C | 27.941 | 1454.6 |
| 293.0 | 295.92 | 34.783 D | 0.166 C | 27.951 | 1454.6 |
| 294.0 | 296.86 | 34.779 D | 0.171 C | 27.947 | 1454.6 |
| 295.0 | 297.90 | 34.781 D | 0.172 C | 27.949 | 1454.7 |
| 296.0 | 298.90 | 34.782 D | 0.173 C | 27.950 | 1454.7 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 297.0 | 299.91 | 34.786 D | 0.174 C | 27.953 | 1454.7 |
| 298.0 | 300.93 | 34.787 D | 0.176 C | 27.954 | 1454.7 |
| 299.0 | 301.98 | 34.789 D | 0.178 C | 27.955 | 1454.8 |
| 300.0 | 303.07 | 34.791 D | 0.180 C | 27.957 | 1454.8 |
| 301.0 | 303.98 | 34.791 D | 0.182 C | 27.957 | 1454.8 |
| 302.0 | 305.03 | 34.791 D | 0.182 C | 27.957 | 1454.8 |
| 303.0 | 306.00 | 34.792 D | 0.183 C | 27.957 | 1454.9 |
| 304.0 | 307.02 | 34.794 D | 0.183 C | 27.959 | 1454.9 |
| 305.0 | 308.02 | 34.793 D | 0.187 C | 27.958 | 1454.9 |
| 306.0 | 309.02 | 34.796 D | 0.188 C | 27.960 | 1454.9 |
| 307.0 | 310.01 | 34.800 D | 0.189 C | 27.964 | 1455.0 |
| 308.0 | 311.02 | 34.800 D | 0.192 C | 27.963 | 1455.0 |
| 309.0 | 312.07 | 34.801 D | 0.194 C | 27.964 | 1455.0 |
| 310.0 | 313.07 | 34.803 D | 0.195 C | 27.965 | 1455.0 |
| 311.0 | 314.07 | 34.804 D | 0.195 C | 27.966 | 1455.1 |
| 312.0 | 315.12 | 34.806 D | 0.197 C | 27.968 | 1455.1 |
| 313.0 | 316.12 | 34.806 D | 0.198 C | 27.968 | 1455.1 |
| 314.0 | 317.13 | 34.807 D | 0.199 C | 27.968 | 1455.1 |
| 315.0 | 318.14 | 34.807 D | 0.200 C | 27.969 | 1455.2 |
| 316.0 | 319.16 | 34.808 D | 0.200 C | 27.970 | 1455.2 |
| 317.0 | 320.14 | 34.810 D | 0.202 C | 27.971 | 1455.2 |
| 318.0 | 321.13 | 34.808 D | 0.204 C | 27.969 | 1455.2 |
| 319.0 | 322.15 | 34.813 D | 0.204 C | 27.973 | 1455.2 |
| 320.0 | 323.19 | 34.812 D | 0.204 C | 27.972 | 1455.3 |
| 321.0 | 324.24 | 34.809 D | 0.208 C | 27.969 | 1455.3 |
| 322.0 | 325.25 | 34.812 D | 0.207 C | 27.972 | 1455.3 |
| 323.0 | 326.31 | 34.815 D | 0.207 C | 27.974 | 1455.3 |
| 324.0 | 327.23 | 34.816 D | 0.208 C | 27.975 | 1455.4 |
| 325.0 | 328.22 | 34.816 D | 0.208 C | 27.975 | 1455.4 |
| 326.0 | 329.26 | 34.807 D | 0.215 C | 27.968 | 1455.4 |
| 327.0 | 330.26 | 34.816 D | 0.211 C | 27.975 | 1455.4 |
| 328.0 | 331.28 | 34.817 D | 0.211 C | 27.976 | 1455.4 |
| 329.0 | 332.26 | 34.825 D | 0.211 C | 27.982 | 1455.5 |
| 330.0 | 333.30 | 34.820 D | 0.211 C | 27.979 | 1455.5 |
| 331.0 | 334.43 | 34.820 D | 0.214 C | 27.978 | 1455.5 |
| 332.0 | 335.33 | 34.819 D | 0.216 C | 27.977 | 1455.5 |
| 333.0 | 336.35 | 34.823 D | 0.214 C | 27.980 | 1455.5 |
| 334.0 | 337.37 | 34.823 D | 0.214 C | 27.981 | 1455.6 |
| 335.0 | 338.42 | 34.818 D | 0.218 C | 27.977 | 1455.6 |
| 336.0 | 339.37 | 34.824 D | 0.215 C | 27.981 | 1455.6 |
| 337.0 | 340.47 | 34.824 D | 0.218 C | 27.981 | 1455.6 |
| 338.0 | 341.34 | 34.822 D | 0.217 C | 27.979 | 1455.6 |
| 339.0 | 342.42 | 34.823 D | 0.217 C | 27.980 | 1455.7 |
| 340.0 | 343.43 | 34.825 D | 0.217 C | 27.982 | 1455.7 |
| 341.0 | 344.43 | 34.826 D | 0.219 C | 27.983 | 1455.7 |
| 342.0 | 345.46 | 34.820 D | 0.226 C | 27.977 | 1455.7 |
| 343.0 | 346.46 | 34.830 D | 0.220 C | 27.986 | 1455.7 |
| 344.0 | 347.45 | 34.826 D | 0.220 C | 27.983 | 1455.8 |
| 345.0 | 348.43 | 34.830 D | 0.222 C | 27.985 | 1455.8 |
| 346.0 | 349.44 | 34.831 D | 0.221 C | 27.987 | 1455.8 |
| 347.0 | 350.51 | 34.832 D | 0.222 C | 27.987 | 1455.8 |
| 348.0 | 351.49 | 34.828 D | 0.222 C | 27.984 | 1455.8 |
| 349.0 | 352.54 | 34.830 D | 0.223 C | 27.986 | 1455.9 |
| 350.0 | 353.51 | 34.832 D | 0.224 C | 27.987 | 1455.9 |
| 351.0 | 354.56 | 34.828 D | 0.225 C | 27.984 | 1455.9 |
| 352.0 | 355.53 | 34.831 D | 0.224 C | 27.986 | 1455.9 |
| 353.0 | 356.52 | 34.832 D | 0.224 C | 27.987 | 1455.9 |
| 354.0 | 357.57 | 34.832 D | 0.226 C | 27.987 | 1456.0 |
| 355.0 | 358.59 | 34.830 D | 0.226 C | 27.985 | 1456.0 |
| 356.0 | 359.60 | 34.829 D | 0.229 C | 27.984 | 1456.0 |
| 357.0 | 360.69 | 34.833 D | 0.225 C | 27.988 | 1456.0 |
| 358.0 | 361.60 | 34.836 D | 0.227 C | 27.990 | 1456.0 |
| 359.0 | 362.62 | 34.832 D | 0.228 C | 27.987 | 1456.0 |
| 360.0 | 363.64 | 34.833 D | 0.227 C | 27.988 | 1456.1 |
| 361.0 | 364.63 | 34.825 D | 0.233 C | 27.981 | 1456.1 |
| 362.0 | 365.66 | 34.830 D | 0.234 C | 27.985 | 1456.1 |
| 363.0 | 366.66 | 34.834 D | 0.229 C | 27.989 | 1456.1 |
| 364.0 | 367.70 | 34.835 D | 0.230 C | 27.989 | 1456.1 |
| 365.0 | 368.69 | 34.853 D | 0.230 C | 28.004 | 1456.2 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 366.0 | 369.69 | 34.840 D | 0.232 C | 27.993 | 1456.2 |
| 367.0 | 370.69 | 34.835 D | 0.234 C | 27.989 | 1456.2 |
| 368.0 | 371.73 | 34.844 D | 0.232 C | 27.997 | 1456.2 |
| 369.0 | 372.71 | 34.836 D | 0.233 C | 27.990 | 1456.2 |
| 370.0 | 373.73 | 34.837 D | 0.234 C | 27.991 | 1456.3 |
| 371.0 | 374.83 | 34.829 D | 0.242 C | 27.984 | 1456.3 |
| 372.0 | 375.76 | 34.840 D | 0.234 C | 27.993 | 1456.3 |
| 373.0 | 376.77 | 34.837 D | 0.236 C | 27.990 | 1456.3 |
| 374.0 | 377.76 | 34.838 D | 0.235 C | 27.992 | 1456.3 |
| 375.0 | 378.75 | 34.841 D | 0.236 C | 27.994 | 1456.4 |
| 376.0 | 379.77 | 34.839 D | 0.236 C | 27.992 | 1456.4 |
| 377.0 | 380.79 | 34.840 D | 0.239 C | 27.993 | 1456.4 |
| 378.0 | 381.92 | 34.839 D | 0.239 C | 27.992 | 1456.4 |
| 379.0 | 382.77 | 34.844 D | 0.238 C | 27.996 | 1456.4 |
| 380.0 | 383.81 | 34.847 D | 0.240 C | 27.998 | 1456.5 |
| 381.0 | 384.80 | 34.843 D | 0.240 C | 27.995 | 1456.5 |
| 382.0 | 385.87 | 34.843 D | 0.240 C | 27.995 | 1456.5 |
| 383.0 | 386.89 | 34.855 D | 0.238 C | 28.005 | 1456.5 |
| 384.0 | 387.91 | 34.846 D | 0.238 C | 27.998 | 1456.5 |
| 385.0 | 388.92 | 34.848 D | 0.238 C | 27.999 | 1456.5 |
| 386.0 | 389.92 | 34.844 D | 0.240 C | 27.996 | 1456.6 |
| 387.0 | 390.93 | 34.842 D | 0.243 C | 27.995 | 1456.6 |
| 388.0 | 391.93 | 34.847 D | 0.240 C | 27.998 | 1456.6 |
| 389.0 | 392.91 | 34.849 D | 0.241 C | 28.000 | 1456.6 |
| 390.0 | 394.01 | 34.841 D | 0.246 C | 27.993 | 1456.7 |
| 391.0 | 394.95 | 34.848 D | 0.242 C | 27.999 | 1456.7 |
| 392.0 | 395.89 | 34.846 D | 0.243 C | 27.997 | 1456.7 |
| 393.0 | 396.93 | 34.843 D | 0.244 C | 27.995 | 1456.7 |
| 394.0 | 397.95 | 34.858 D | 0.241 C | 28.008 | 1456.7 |
| 395.0 | 399.02 | 34.838 D | 0.252 C | 27.991 | 1456.8 |
| 396.0 | 400.01 | 34.843 D | 0.250 C | 27.995 | 1456.8 |
| 397.0 | 401.05 | 34.846 D | 0.245 C | 27.997 | 1456.8 |
| 398.0 | 402.03 | 34.847 D | 0.244 C | 27.998 | 1456.8 |
| 399.0 | 403.07 | 34.847 D | 0.243 C | 27.998 | 1456.8 |
| 400.0 | 404.02 | 34.849 D | 0.243 C | 28.000 | 1456.8 |
| 401.0 | 405.08 | 34.846 D | 0.247 C | 27.997 | 1456.8 |
| 402.0 | 406.09 | 34.857 D | 0.244 C | 28.007 | 1456.9 |
| 403.0 | 407.04 | 34.849 D | 0.243 C | 28.000 | 1456.9 |
| 404.0 | 408.08 | 34.848 D | 0.245 C | 27.999 | 1456.9 |
| 405.0 | 409;24 | 34.855 D | 0.243 C | 28.005 | 1456.9 |
| 406.0 | 410.15 | 34.850 D | 0.246 C | 28.000 | 1456.9 |
| 407.0 | 411.14 | 34.852 D | 0.246 C | 28.002 | 1457.0 |
| 408.0 | 412.20 | 34.852 D | 0.246 C | 28.002 | 1457.0 |
| 409.0 | 413.20 | 34.853 D | 0.246 C | 28.003 | 1457.0 |
| 410.0 | 414.16 | 34.850 D | 0.246 C | 28.001 | 1457.0 |
| 411.0 | 415.21 | 34.853 D | 0.249 C | 28.003 | 1457.0 |
| 412.0 | 416.47 | 34.853 D | 0.246 C | 28.003 | 1457.0 |
| 413.0 | 417.18 | 34.858 D | 0.246 C | 28.007 | 1457.1 |
| 414.0 | 418.21 | 34.857 D | 0.246 C | 28.006 | 1457.1 |
| 415.0 | 419.23 | 34.857 D | 0.247 C | 28.006 | 1457.1 |
| 416.0 | 420.28 | 34.852 D | 0.247 C | 28.002 | 1457.1 |
| 417.0 | 421.23 | 34.852 D | 0.247 C | 28.002 | 1457.1 |
| 418.0 | 422.23 | 34.853 D | 0.247 C | 28.003 | 1457.1 |
| 419.0 | 423.25 | 34.854 D | 0.247 C | 28.004 | 1457.2 |
| 420.0 | 424.26 | 34.854 D | 0.247 C | 28.004 | 1457.2 |
| 421.0 | 425.27 | 34.856 D | 0.247 C | 28.005 | 1457.2 |
| 422.0 | 426.24 | 34.858 D | 0.247 C | 28.007 | 1457.2 |
| 423.0 | 427.27 | 34.853 D | 0.249 C | 28.003 | 1457.2 |
| 424.0 | 428.30 | 34.855 D | 0.248 C | 28.004 | 1457.2 |
| 425.0 | 429.37 | 34.858 D | 0.247 C | 28.007 | 1457.3 |
| 426.0 | 430.31 | 34.855 D | 0.249 C | 28.005 | 1457.3 |
| 427.0 | 431.33 | 34.858 D | 0.248 C | 28.007 | 1457.3 |
| 428.0 | 432.35 | 34.858 D | 0.248 C | 28.007 | 1457.3 |
| 429.0 | 433.35 | 34.854 D | 0.252 C | 28.003 | 1457.3 |
| 430.0 | 434.37 | 34.855 D | 0.250 C | 28.004 | 1457.4 |
| 431.0 | 435.40 | 34.856 D | 0.249 C | 28.005 | 1457.4 |
| 432.0 | 436.42 | 34.857 D | 0.250 C | 28.006 | 1457.4 |
| 433.0 | 437.44 | 34.856 D | 0.249 C | 28.006 | 1457.4 |
| 434.0 | 438.43 | 34.860 D | 0.250 C | 28.008 | 1457.4 |

| DEPTH | PRESS | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| 435.0 | 439.60 | 34.857 | D | 0.248 | C | 28.006 | 1457.4 |
| 436.0 | 440.51 | 34.863 | D | 0.249 | C | 28.011 | 1457.5 |
| 437.0 | 441.47 | 34.859 | D | 0.249 | C | 28.008 | 1457.5 |
| 438.0 | 442.48 | 34.868 | D | 0.250 | C | 28.015 | 1457.5 |
| 439.0 | 443.46 | 34.859 | D | 0.249 | C | 28.008 | 1457.5 |
| 440.0 | 444.49 | 34.858 | D | 0.249 | C | 28.007 | 1457.5 |
| 441.0 | 445.51 | 34.856 | D | 0.249 | C | 28.006 | 1457.5 |
| 442.0 | 446.51 | 34.834 | D | 0.270 | C | 27.987 | 1457.6 |
| 443.0 | 447.47 | 34.858 | D | 0.249 | C | 28.007 | 1457.6 |
| 444.0 | 448.49 | 34.864 | D | 0.249 | C | 28.011 | 1457.6 |
| 445.0 | 449.44 | 34.861 | D | 0.249 | C | 28.009 | 1457.6 |
| 446.0 | 450.53 | 34.858 | D | 0.249 | C | 28.007 | 1457.6 |
| 447.0 | 451.46 | 34.859 | D | 0.251 | C | 28.008 | 1457.6 |
| 448.0 | 452.51 | 34.859 | D | 0.249 | C | 28.008 | 1457.7 |
| 449.0 | 453.53 | 34.860 | D | 0.250 | C | 28.009 | 1457.7 |
| 450.0 | 454.40 | 34.859 | D | 0.249 | C | 28.008 | 1457.7 |

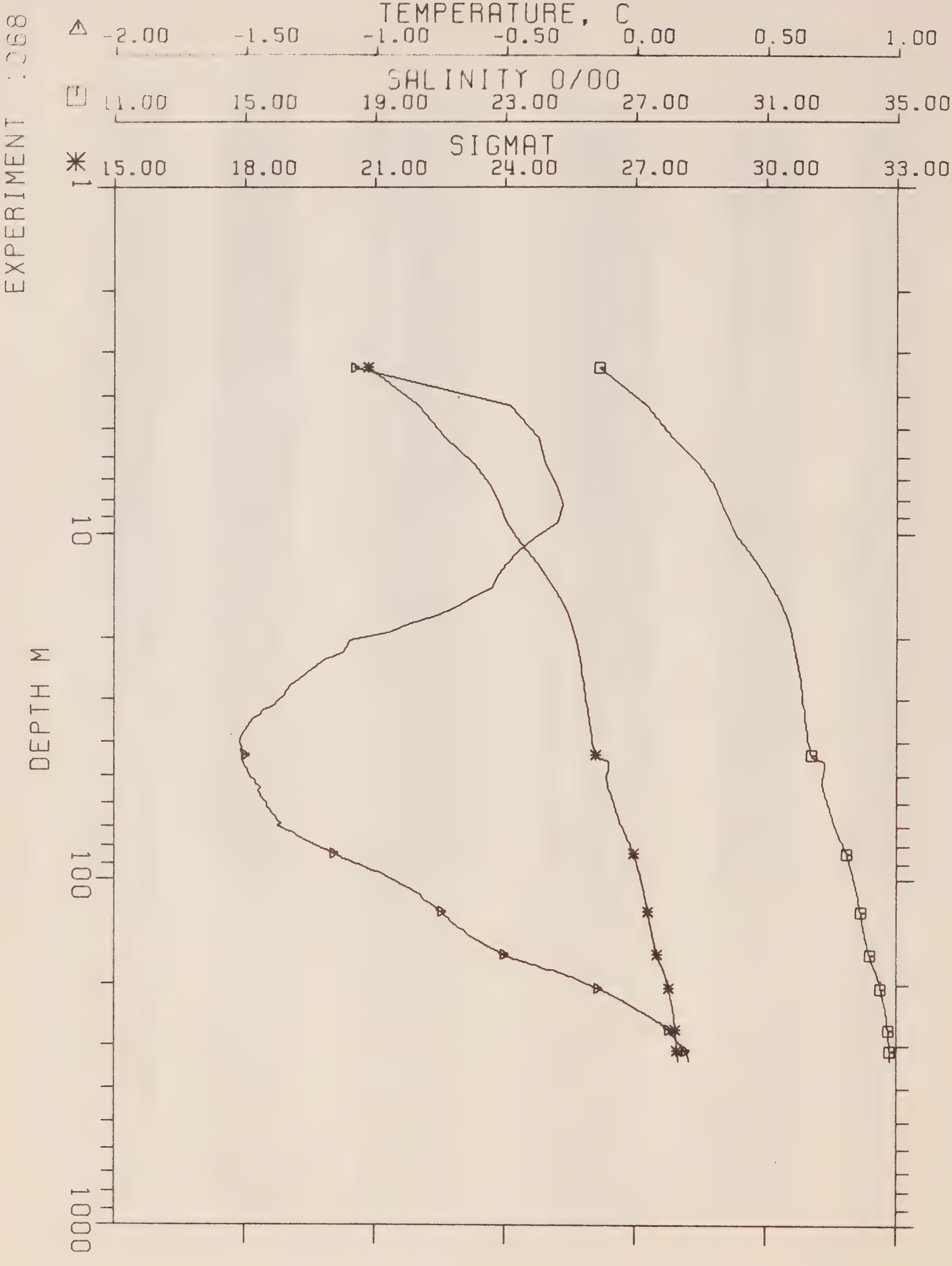

EXPERIMENT 1067
TEMPERATURE, C
-2.00
-1.50
-1.00
-0.50
0.00
0.50
1.00
SALINITY 0/00
11.00
15.00
19.00
23.00
27.00
31.00
35.00
SIGMAT
15.00
18.00
21.00
24.00
27.00
30.00
33.00
DEPTH M
1
10
100
1000

| CRUISE | | D'IBERVILLE FIORD-75 | | EXPER NO. 1067 | |
|---|---|---|---|---|---|
| LAT N.80-35-30 | | LONG W.78-15-00 | | WATER DEPTH 200 | |
| DEPTH INCR. | | DATE 080475 | | LOCAL TIME 0942 | |

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 2.0 | 1.95 | | -1.176 D | | |
| 3.0 | 2.95 | | -1.013 D | | |
| 4.0 | 4.05 | 27.566 E | -0.799 D | 22.168 | 1435.3 |
| 5.0 | 5.00 | 28.527 E | -0.621 D | 22.939 | 1437.5 |
| 6.0 | 6.05 | 29.100 E | -0.488 D | 23.398 | 1438.9 |
| 7.0 | 7.05 | 29.450 E | -0.407 D | 23.678 | 1439.8 |
| 8.0 | 8.05 | 29.669 E | -0.287 D | 23.850 | 1440.7 |
| 9.0 | 9.10 | 29.895 E | -0.378 D | 24.036 | 1440.6 |
| 10.0 | 10.05 | 30.125 E | -0.335 D | 24.220 | 1441.1 |
| 11.0 | 11.00 | 30.262 E | -0.265 D | 24.328 | 1441.7 |
| 12.0 | 12.05 | 30.588 E | -0.454 D | 24.597 | 1441.3 |
| 13.0 | 13.15 | 30.832 E | -0.333 D | 24.789 | 1442.2 |
| 14.0 | 14.15 | 31.156 E | -0.621 D | 25.060 | 1441.3 |
| 15.0 | 15.10 | 31.279 E | -0.828 D | 25.165 | 1440.5 |
| 16.0 | 16.05 | 31.414 E | -0.824 D | 25.275 | 1440.7 |
| 17.0 | 17.15 | 31.576 E | -0.885 D | 25.407 | 1440.7 |
| 18.0 | 18.10 | 31.678 E | -0.990 D | 25.492 | 1440.4 |
| 19.0 | 19.15 | 31.739 E | -1.052 D | 25.543 | 1440.2 |
| 20.0 | 20.15 | 31.792 E | -1.111 D | 25.588 | 1440.0 |
| 21.0 | 21.15 | 31.843 E | -1.176 D | 25.631 | 1439.8 |
| 22.0 | 22.20 | 31.851 E | -1.158 D | 25.637 | 1439.9 |
| 23.0 | 23.15 | 31.915 E | -1.201 D | 25.689 | 1439.8 |
| 24.0 | 24.20 | 31.947 E | -1.277 D | 25.717 | 1439.5 |
| 25.0 | 25.15 | 31.973 E | -1.293 D | 25.739 | 1439.5 |
| 26.0 | 26.25 | 32.008 E | -1.317 D | 25.768 | 1439.4 |
| 27.0 | 27.20 | 32.023 E | -1.328 D | 25.780 | 1439.4 |
| 28.0 | 28.20 | 32.043 E | -1.356 D | 25.797 | 1439.3 |
| 29.0 | 29.30 | 32.062 E | -1.387 D | 25.813 | 1439.2 |
| 30.0 | 30.25 | 32.073 E | -1.392 D | 25.822 | 1439.2 |
| 31.0 | 31.25 | 32.092 E | -1.415 D | 25.838 | 1439.2 |
| 32.0 | 32.25 | 32.116 E | -1.433 D | 25.858 | 1439.1 |
| 33.0 | 33.25 | 32.146 E | -1.458 D | 25.833 | 1439.1 |
| 34.0 | 34.35 | 32.165 E | -1.478 D | 25.899 | 1439.0 |
| 35.0 | 35.30 | 32.184 E | -1.498 D | 25.914 | 1439.0 |
| 36.0 | 36.30 | 32.193 E | -1.507 D | 25.922 | 1438.9 |
| 37.0 | 37.30 | 32.221 E | -1.537 D | 25.945 | 1438.9 |
| 38.0 | 38.30 | 32.234 E | -1.542 D | 25.956 | 1438.9 |
| 39.0 | 39.30 | 32.256 E | -1.577 D | 25.974 | 1438.8 |
| 40.0 | 40.35 | 32.267 E | -1.561 D | 25.983 | 1438.9 |
| 41.0 | 41.35 | 32.281 E | -1.568 D | 25.994 | 1438.9 |
| 42.0 | 42.35 | 32.293 E | -1.575 D | 26.004 | 1438.9 |
| 43.0 | 43.35 | 32.306 E | -1.579 D | 26.015 | 1438.9 |
| 44.0 | 44.40 | 32.334 E | -1.590 D | 26.038 | 1438.9 |
| 45.0 | 45.35 | 32.372 E | -1.625 D | 26.069 | 1438.8 |
| 46.0 | 46.40 | 32.398 E | -1.623 D | 26.091 | 1438.8 |
| 47.0 | 47.40 | 32.419 E | -1.627 D | 26.107 | 1438.9 |
| 48.0 | 48.35 | 32.435 E | -1.593 D | 26.120 | 1439.1 |
| 49.0 | 49.45 | 32.469 E | -1.595 D | 26.148 | 1439.1 |
| 50.0 | 50.40 | 32.508 E | -1.597 D | 26.179 | 1439.2 |
| 51.0 | 51.50 | 32.539 E | -1.588 D | 26.204 | 1439.3 |
| 52.0 | 52.40 | 32.566 E | -1.565 D | 26.225 | 1439.5 |
| 53.0 | 53.50 | 32.601 E | -1.597 D | 26.255 | 1439.4 |
| 54.0 | 54.50 | 32.619 E | -1.620 D | 26.269 | 1439.3 |
| 55.0 | 55.50 | 32.650 E | -1.610 D | 26.295 | 1439.4 |
| 56.0 | 56.50 | 32.680 E | -1.575 D | 26.318 | 1439.6 |
| 57.0 | 57.45 | 32.710 E | -1.541 D | 26.341 | 1439.9 |
| 58.0 | 58.55 | 32.756 E | -1.568 D | 26.379 | 1439.8 |
| 59.0 | 59.55 | 32.787 E | -1.598 D | 26.405 | 1439.7 |
| 60.0 | 60.55 | 32.810 E | -1.579 D | 26.424 | 1439.9 |
| 61.0 | 61.55 | 32.837 E | -1.586 D | 26.446 | 1439.9 |
| 62.0 | 62.50 | 32.858 E | -1.565 D | 26.462 | 1440.0 |
| 63.0 | 63.60 | 32.886 E | -1.564 D | 26.485 | 1440.1 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 64.0 | 64.55 | 32.916 E | -1.573 D | 26.509 | 1440.1 |
| 65.0 | 65.60 | 32.943 E | -1.565 D | 26.531 | 1440.2 |
| 66.0 | 66.60 | 32.960 E | -1.543 D | 26.544 | 1440.3 |
| 67.0 | 67.55 | 32.995 E | -1.536 D | 26.572 | 1440.4 |
| 68.0 | 68.65 | 33.005 E | -1.517 D | 26.580 | 1440.6 |
| 69.0 | 69.60 | 33.040 E | -1.470 D | 26.607 | 1440.9 |
| 70.0 | 70.65 | 33.065 E | -1.470 D | 26.628 | 1440.9 |
| 71.0 | 71.65 | 33.088 E | -1.454 D | 26.645 | 1441.0 |
| 72.0 | 72.60 | 33.110 E | -1.442 D | 26.663 | 1441.1 |
| 73.0 | 73.65 | 33.132 E | -1.432 D | 26.680 | 1441.2 |
| 74.0 | 74.70 | 33.154 E | -1.423 D | 26.698 | 1441.3 |
| 75.0 | 75.70 | 33.186 E | -1.412 D | 26.724 | 1441.4 |
| 76.0 | 76.70 | 33.229 E | -1.480 D | 26.760 | 1441.2 |
| 77.0 | 77.75 | 33.247 E | -1.520 D | 26.776 | 1441.0 |
| 78.0 | 78.70 | 33.266 E | -1.501 D | 26.791 | 1441.2 |
| 79.0 | 79.75 | 33.308 E | -1.506 D | 26.825 | 1441.2 |
| 80.0 | 80.75 | 33.345 E | -1.556 D | 26.857 | 1441.1 |
| 81.0 | 81.70 | 33.364 E | -1.593 D | 26.873 | 1440.9 |
| 82.0 | 82.75 | 33.390 E | -1.634 D | 26.895 | 1440.8 |
| 83.0 | 83.80 | 33.394 E | -1.662 D | 26.899 | 1440.7 |
| 84.0 | 84.80 | 33.411 E | -1.679 D | 26.913 | 1440.6 |
| 85.0 | 85.75 | 33.416 E | -1.682 D | 26.917 | 1440.6 |
| 86.0 | 86.85 | 33.433 E | -1.663 D | 26.930 | 1440.8 |
| 87.0 | 87.90 | 33.442 E | -1.644 D | 26.937 | 1440.9 |
| 88.0 | 88.85 | 33.464 E | -1.606 D | 26.954 | 1441.1 |
| 89.0 | 89.80 | 33.484 E | -1.570 D | 26.970 | 1441.3 |
| 90.0 | 90.90 | 33.498 E | -1.544 D | 26.980 | 1441.5 |
| 91.0 | 91.95 | 33.514 E | -1.512 D | 26.992 | 1441.7 |
| 92.0 | 92.90 | 33.518 E | -1.480 D | 26.994 | 1441.9 |
| 93.0 | 93.85 | 33.540 E | -1.433 D | 27.011 | 1442.1 |
| 94.0 | 94.90 | 33.540 E | -1.379 D | 27.010 | 1442.4 |
| 95.0 | 95.90 | 33.564 E | -1.292 D | 27.027 | 1442.9 |
| 96.0 | 96.95 | 33.586 E | -1.234 D | 27.043 | 1443.2 |
| 97.0 | 97.90 | 33.603 E | -1.197 D | 27.056 | 1443.4 |
| 98.0 | 98.90 | 33.614 E | -1.146 D | 27.063 | 1443.7 |
| 99.0 | 99.95 | 33.644 E | -1.089 D | 27.085 | 1444.0 |
| 100.0 | 101.00 | 33.660 D | -1.065 C | 27.097 | 1444.1 |
| 101.0 | 102.00 | 33.673 D | -1.052 C | 27.107 | 1444.2 |
| 102.0 | 103.00 | 33.682 D | -1.041 C | 27.115 | 1444.3 |
| 103.0 | 104.00 | 33.691 D | -1.014 C | 27.121 | 1444.5 |
| 104.0 | 104.95 | 33.702 D | -0.998 C | 27.129 | 1444.6 |
| 105.0 | 106.00 | 33.716 D | -0.965 C | 27.139 | 1444.8 |
| 106.0 | 107.05 | 33.749 D | -0.992 C | 27.167 | 1444.7 |
| 107.0 | 107.95 | 33.743 D | -0.987 C | 27.162 | 1444.7 |
| 108.0 | 109.05 | 33.753 D | -0.945 C | 27.169 | 1445.0 |
| 109.0 | 110.10 | 33.757 D | -0.898 C | 27.170 | 1445.2 |
| 110.0 | 111.00 | 33.772 D | -0.865 C | 27.181 | 1445.4 |
| 111.0 | 112.10 | 33.784 D | -0.849 C | 27.190 | 1445.5 |
| 112.0 | 113.05 | 33.795 D | -0.844 C | 27.199 | 1445.6 |
| 113.0 | 114.05 | 33.801 D | -0.825 C | 27.203 | 1445.7 |
| 114.0 | 115.15 | 33.812 D | -0.820 C | 27.212 | 1445.7 |
| 115.0 | 116.10 | 33.824 D | -0.803 C | 27.221 | 1445.8 |
| 116.0 | 117.15 | 33.832 D | -0.792 C | 27.227 | 1445.9 |
| 117.0 | 118.20 | 33.841 D | -0.784 C | 27.234 | 1446.0 |
| 118.0 | 119.10 | 33.846 D | -0.778 C | 27.238 | 1446.0 |
| 119.0 | 120.20 | 33.857 D | -0.771 C | 27.246 | 1446.1 |
| 120.0 | 121.20 | 33.864 D | -0.764 C | 27.252 | 1446.2 |
| 121.0 | 122.15 | 33.872 D | -0.755 C | 27.258 | 1446.2 |
| 122.0 | 123.20 | 33.882 D | -0.747 C | 27.266 | 1446.3 |
| 123.0 | 124.25 | 33.891 D | -0.739 C | 27.273 | 1446.4 |
| 124.0 | 125.20 | 33.899 D | -0.732 C | 27.279 | 1446.4 |
| 125.0 | 126.25 | 33.906 D | -0.727 C | 27.284 | 1446.5 |
| 126.0 | 127.25 | 33.914 D | -0.719 C | 27.291 | 1446.5 |
| 127.0 | 128.30 | 33.921 D | -0.712 C | 27.296 | 1446.6 |
| 128.0 | 129.25 | 33.928 D | -0.705 C | 27.301 | 1446.7 |
| 129.0 | 130.30 | 33.935 D | -0.699 C | 27.307 | 1446.7 |
| 130.0 | 131.35 | 33.944 D | -0.695 C | 27.314 | 1446.8 |
| 131.0 | 132.30 | 33.948 D | -0.689 C | 27.317 | 1446.8 |
| 132.0 | 133.30 | 33.955 D | -0.684 C | 27.322 | 1446.9 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 133.0 | 134.40 | 33.963 D | -0.677 C | 27.329 | 1446.9 |
| 134.0 | 135.35 | 33.974 D | -0.671 C | 27.337 | 1447.0 |
| 135.0 | 136.30 | 33.980 D | -0.661 C | 27.342 | 1447.1 |
| 136.0 | 137.35 | 33.990 D | -0.655 C | 27.349 | 1447.1 |
| 137.0 | 138.45 | 33.996 D | -0.650 C | 27.354 | 1447.2 |
| 138.0 | 139.40 | 34.004 D | -0.643 C | 27.360 | 1447.2 |
| 139.0 | 140.35 | 34.010 D | -0.637 C | 27.365 | 1447.3 |
| 140.0 | 141.45 | 34.016 D | -0.632 C | 27.369 | 1447.3 |
| 141.0 | 142.40 | 34.020 D | -0.628 C | 27.373 | 1447.4 |
| 142.0 | 143.40 | 34.030 D | -0.621 C | 27.380 | 1447.4 |
| 143.0 | 144.45 | 34.039 D | -0.613 C | 27.387 | 1447.5 |
| 144.0 | 145.50 | 34.043 D | -0.610 C | 27.390 | 1447.5 |
| 145.0 | 146.45 | 34.050 D | -0.605 C | 27.396 | 1447.6 |
| 146.0 | 147.50 | 34.057 D | -0.593 C | 27.401 | 1447.6 |
| 147.0 | 148.50 | 34.063 D | -0.594 C | 27.405 | 1447.7 |
| 148.0 | 149.50 | 34.070 D | -0.584 C | 27.411 | 1447.8 |
| 149.0 | 150.60 | 34.082 D | -0.575 C | 27.420 | 1447.8 |
| 150.0 | 151.55 | 34.089 D | -0.569 C | 27.426 | 1447.9 |
| 151.0 | 152.50 | 34.097 D | -0.560 C | 27.432 | 1448.0 |
| 152.0 | 153.60 | 34.106 D | -0.556 C | 27.439 | 1448.0 |
| 153.0 | 154.60 | 34.112 D | -0.551 C | 27.444 | 1448.1 |
| 154.0 | 155.55 | 34.118 D | -0.545 C | 27.448 | 1448.1 |
| 155.0 | 156.60 | 34.125 D | -0.538 C | 27.453 | 1448.2 |
| 156.0 | 157.60 | 34.133 D | -0.530 C | 27.460 | 1448.2 |
| 157.0 | 158.60 | 34.133 D | -0.524 C | 27.459 | 1448.3 |
| 158.0 | 159.65 | 34.145 D | -0.520 C | 27.469 | 1448.3 |
| 159.0 | 160.60 | 34.153 D | -0.514 C | 27.475 | 1448.4 |
| 160.0 | 161.70 | 34.157 D | -0.508 C | 27.478 | 1448.4 |
| 161.0 | 162.65 | 34.167 D | -0.499 C | 27.486 | 1448.5 |
| 162.0 | 163.65 | 34.174 D | -0.492 C | 27.491 | 1448.6 |
| 163.0 | 164.70 | 34.184 D | -0.484 C | 27.499 | 1448.6 |
| 164.0 | 165.70 | 34.191 D | -0.479 C | 27.504 | 1448.7 |
| 165.0 | 166.65 | 34.199 D | -0.470 C | 27.511 | 1448.7 |
| 166.0 | 167.75 | 34.210 D | -0.460 C | 27.519 | 1448.8 |
| 167.0 | 168.70 | 34.222 D | -0.446 C | 27.528 | 1448.9 |
| 168.0 | 169.75 | 34.242 D | -0.427 C | 27.543 | 1449.1 |
| 169.0 | 170.80 | 34.257 D | -0.415 C | 27.555 | 1449.1 |
| 170.0 | 171.75 | 34.271 D | -0.403 C | 27.565 | 1449.2 |
| 171.0 | 172.75 | 34.281 D | -0.392 C | 27.574 | 1449.3 |
| 172.0 | 173.80 | 34.291 D | -0.385 C | 27.581 | 1449.4 |
| 173.0 | 174.80 | 34.300 D | -0.376 C | 27.588 | 1449.5 |
| 174.0 | 175.85 | 34.308 D | -0.364 C | 27.594 | 1449.5 |
| 175.0 | 176.80 | 34.322 D | -0.354 C | 27.605 | 1449.6 |
| 176.0 | 177.85 | 34.331 D | -0.345 C | 27.611 | 1449.7 |
| 177.0 | 178.85 | 34.340 D | -0.334 C | 27.618 | 1449.8 |
| 178.0 | 179.90 | 34.350 D | -0.330 C | 27.626 | 1449.8 |
| 179.0 | 180.85 | 34.355 D | -0.321 C | 27.629 | 1449.9 |
| 180.0 | 181.95 | 34.364 D | -0.312 C | 27.637 | 1450.0 |


EXPERIMENT :068
TEMPERATURE, C
-2.00 -1.50 -1.00 -0.50 0.00 0.50 1.00
SALINITY 0/00
11.00 15.00 19.00 23.00 27.00 31.00 35.00
SIGMAT
15.00 18.00 21.00 24.00 27.00 30.00 33.00
DEPTH M
1
10
100
1000

CRUISE D'IBERVILLE FIORD-75 EXPER NO. 1068

LAT N.80-35-10 LONG W.80-07-00 WATER DEPTH 369

DEPTH INCR. DATE 100475 LOCAL TIME 1255

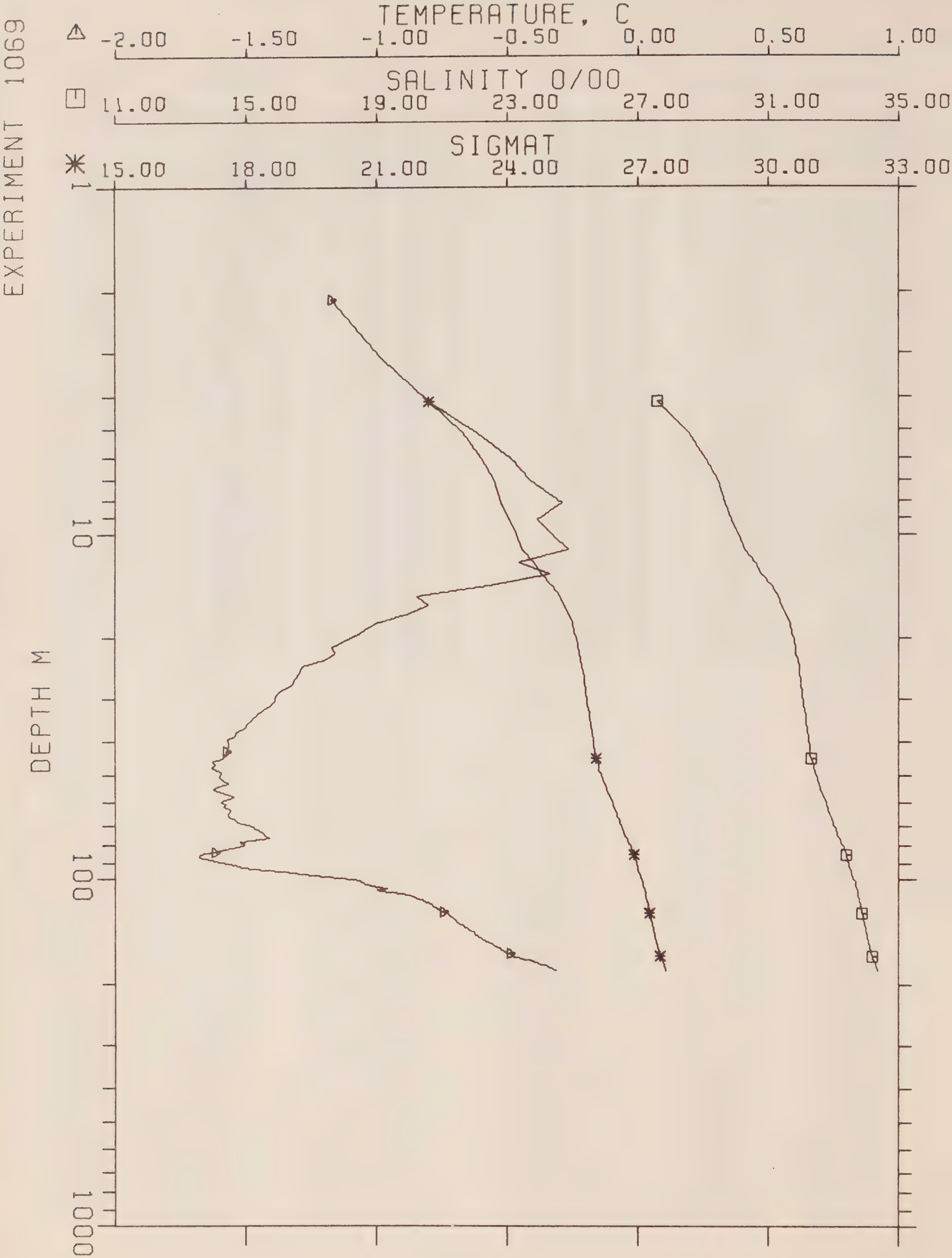
| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 3.0 | 3.32 | 25.923 E | -1.080 D | 20.846 | 1431.7 |
| 4.0 | 4.26 | 27.346 E | -0.482 D | 21.984 | 1436.5 |
| 5.0 | 5.30 | 28.151 E | -0.369 D | 22.630 | 1438.2 |
| 6.0 | 6.28 | 28.968 E | -0.343 D | 23.288 | 1439.4 |
| 7.0 | 7.27 | 29.439 E | -0.298 D | 23.666 | 1440.3 |
| 8.0 | 8.27 | 29.690 E | -0.277 D | 23.867 | 1440.8 |
| 9.0 | 9.28 | 29.904 E | -0.296 D | 24.041 | 1441.0 |
| 10.0 | 10.27 | 30.169 E | -0.387 D | 24.257 | 1441.0 |
| 11.0 | 11.26 | 30.465 E | -0.446 D | 24.497 | 1441.1 |
| 12.0 | 12.26 | 30.762 E | -0.491 D | 24.738 | 1441.3 |
| 13.0 | 13.26 | 31.011 E | -0.526 D | 24.940 | 1441.5 |
| 14.0 | 14.24 | 31.213 E | -0.542 D | 25.103 | 1441.7 |
| 15.0 | 15.25 | 31.393 E | -0.626 D | 25.251 | 1441.6 |
| 16.0 | 16.22 | 31.537 E | -0.679 D | 25.370 | 1441.6 |
| 17.0 | 17.26 | 31.647 E | -0.759 D | 25.460 | 1441.4 |
| 18.0 | 18.27 | 31.736 E | -0.858 D | 25.536 | 1441.1 |
| 19.0 | 19.29 | 31.798 E | -0.944 D | 25.588 | 1440.8 |
| 20.0 | 20.28 | 31.859 E | -1.096 D | 25.642 | 1440.2 |
| 21.0 | 21.25 | 31.892 E | -1.107 D | 25.668 | 1440.2 |
| 22.0 | 22.25 | 31.936 E | -1.125 D | 25.704 | 1440.2 |
| 23.0 | 23.25 | 31.975 E | -1.195 D | 25.738 | 1439.9 |
| 24.0 | 24.25 | 32.000 E | -1.224 D | 25.759 | 1439.8 |
| 25.0 | 25.26 | 32.030 E | -1.262 D | 25.784 | 1439.7 |
| 26.0 | 26.28 | 32.061 E | -1.292 D | 25.810 | 1439.6 |
| 27.0 | 27.35 | 32.082 E | -1.318 D | 25.828 | 1439.5 |
| 28.0 | 28.32 | 32.101 E | -1.335 D | 25.843 | 1439.5 |
| 29.0 | 29.33 | 32.119 E | -1.346 D | 25.858 | 1439.5 |
| 30.0 | 30.29 | 32.138 E | -1.371 D | 25.874 | 1439.4 |
| 31.0 | 31.32 | 32.158 E | -1.387 D | 25.891 | 1439.4 |
| 32.0 | 32.30 | 32.180 E | -1.424 D | 25.910 | 1439.3 |
| 33.0 | 33.36 | 32.195 E | -1.442 D | 25.922 | 1439.2 |
| 34.0 | 34.31 | 32.213 E | -1.466 D | 25.937 | 1439.1 |
| 35.0 | 35.35 | 32.229 E | -1.478 D | 25.950 | 1439.1 |
| 36.0 | 36.37 | 32.247 E | -1.491 D | 25.965 | 1439.1 |
| 37.0 | 37.36 | 32.263 E | -1.501 D | 25.979 | 1439.1 |
| 38.0 | 38.37 | 32.284 E | -1.512 D | 25.995 | 1439.1 |
| 39.0 | 39.39 | 32.299 E | -1.513 D | 26.008 | 1439.1 |
| 40.0 | 40.37 | 32.318 E | -1.520 D | 26.023 | 1439.1 |
| 41.0 | 41.36 | 32.343 E | -1.510 D | 26.044 | 1439.2 |
| 42.0 | 42.37 | 32.374 E | -1.514 D | 26.068 | 1439.3 |
| 43.0 | 43.41 | 32.401 E | -1.499 D | 26.090 | 1439.4 |
| 44.0 | 44.41 | 32.440 E | -1.509 D | 26.122 | 1439.4 |
| 45.0 | 45.43 | 32.798 E | -1.508 D | 26.412 | 1439.9 |
| 46.0 | 46.43 | 32.782 E | -1.507 D | 26.399 | 1439.9 |
| 47.0 | 47.45 | 32.786 E | -1.497 D | 26.402 | 1440.0 |
| 48.0 | 48.46 | 32.773 E | -1.489 D | 26.391 | 1440.0 |
| 49.0 | 49.46 | 32.740 E | -1.486 D | 26.365 | 1440.0 |
| 50.0 | 50.46 | 32.701 E | -1.481 D | 26.333 | 1440.0 |
| 51.0 | 51.47 | 32.709 E | -1.461 D | 26.339 | 1440.1 |
| 52.0 | 52.47 | 32.737 E | -1.461 D | 26.361 | 1440.2 |
| 53.0 | 53.46 | 32.746 E | -1.446 D | 26.368 | 1440.3 |
| 54.0 | 54.47 | 32.751 E | -1.439 D | 26.372 | 1440.3 |
| 55.0 | 55.48 | 32.781 E | -1.450 D | 26.397 | 1440.4 |
| 56.0 | 56.47 | 32.810 E | -1.439 D | 26.420 | 1440.5 |
| 57.0 | 57.48 | 32.845 E | -1.438 D | 26.448 | 1440.5 |
| 58.0 | 58.50 | 32.875 E | -1.432 D | 26.473 | 1440.6 |
| 59.0 | 59.52 | 32.899 E | -1.418 D | 26.492 | 1440.7 |
| 60.0 | 60.53 | 32.922 E | -1.413 D | 26.510 | 1440.8 |
| 61.0 | 61.54 | 32.945 E | -1.413 D | 26.529 | 1440.9 |
| 62.0 | 62.57 | 32.969 E | -1.407 D | 26.548 | 1440.9 |
| 63.0 | 63.55 | 32.990 E | -1.400 D | 26.565 | 1441.0 |
| 64.0 | 64.57 | 33.014 E | -1.391 D | 26.584 | 1441.1 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 65.0 | 65.57 | 33.037 E | -1.384 D | 26.602 | 1441.2 |
| 66.0 | 66.63 | 33.058 F | -1.378 D | 26.619 | 1441.3 |
| 67.0 | 67.63 | 33.075 F | -1.372 D | 26.633 | 1441.3 |
| 68.0 | 68.62 | 33.098 E | -1.362 D | 26.651 | 1441.4 |
| 69.0 | 69.61 | 33.127 E | -1.373 D | 26.675 | 1441.4 |
| 70.0 | 70.62 | 33.153 F | -1.356 D | 26.696 | 1441.6 |
| 71.0 | 71.62 | 33.179 E | -1.339 D | 26.716 | 1441.7 |
| 72.0 | 72.66 | 33.204 E | -1.319 D | 26.736 | 1441.8 |
| 73.0 | 73.65 | 33.232 E | -1.306 D | 26.758 | 1442.0 |
| 74.0 | 74.68 | 33.260 E | -1.294 D | 26.780 | 1442.1 |
| 75.0 | 75.71 | 33.286 E | -1.280 D | 26.801 | 1442.2 |
| 76.0 | 76.72 | 33.318 F | -1.264 D | 26.827 | 1442.3 |
| 77.0 | 77.72 | 33.345 E | -1.249 D | 26.848 | 1442.5 |
| 78.0 | 78.74 | 33.375 E | -1.230 D | 26.872 | 1442.6 |
| 79.0 | 79.75 | 33.395 F | -1.219 D | 26.888 | 1442.7 |
| 80.0 | 80.76 | 33.414 F | -1.205 D | 26.903 | 1442.8 |
| 81.0 | 81.78 | 33.440 F | -1.188 D | 26.923 | 1442.9 |
| 82.0 | 82.77 | 33.462 E | -1.170 D | 26.941 | 1443.1 |
| 83.0 | 83.81 | 33.481 E | -1.161 D | 26.956 | 1443.2 |
| 84.0 | 84.76 | 33.498 E | -1.143 D | 26.969 | 1443.3 |
| 85.0 | 85.78 | 33.514 E | -1.129 D | 26.981 | 1443.4 |
| 86.0 | 86.76 | 33.530 E | -1.119 D | 26.994 | 1443.5 |
| 87.0 | 87.79 | 33.549 E | -1.099 D | 27.009 | 1443.6 |
| 88.0 | 88.84 | 33.565 E | -1.083 D | 27.021 | 1443.7 |
| 89.0 | 89.84 | 33.580 E | -1.067 D | 27.032 | 1443.8 |
| 90.0 | 90.86 | 33.593 E | -1.048 D | 27.043 | 1444.0 |
| 91.0 | 91.87 | 33.609 E | -1.030 D | 27.055 | 1444.1 |
| 92.0 | 92.88 | 33.622 E | -1.018 D | 27.065 | 1444.2 |
| 93.0 | 93.88 | 33.632 E | -1.009 D | 27.073 | 1444.3 |
| 94.0 | 94.89 | 33.647 E | -0.992 D | 27.084 | 1444.4 |
| 95.0 | 95.89 | 33.665 E | -0.973 D | 27.098 | 1444.5 |
| 96.0 | 96.93 | 33.680 E | -0.959 D | 27.110 | 1444.6 |
| 97.0 | 97.93 | 33.689 E | -0.949 D | 27.117 | 1444.7 |
| 98.0 | 98.92 | 33.697 E | -0.940 D | 27.123 | 1444.7 |
| 99.0 | 99.93 | 33.710 F | -0.928 D | 27.133 | 1444.8 |
| 100.0 | 100.93 | 33.720 D | -0.919 C | 27.141 | 1444.9 |
| 101.0 | 101.97 | 33.730 D | -0.904 C | 27.149 | 1445.0 |
| 102.0 | 102.96 | 33.746 D | -0.893 C | 27.161 | 1445.1 |
| 103.0 | 103.97 | 33.757 D | -0.883 C | 27.169 | 1445.2 |
| 104.0 | 104.99 | 33.764 D | -0.875 C | 27.175 | 1445.2 |
| 105.0 | 105.99 | 33.775 D | -0.866 C | 27.183 | 1445.3 |
| 106.0 | 107.00 | 33.785 D | -0.857 C | 27.191 | 1445.4 |
| 107.0 | 108.01 | 33.792 D | -0.849 C | 27.196 | 1445.5 |
| 108.0 | 109.01 | 33.801 D | -0.841 C | 27.203 | 1445.5 |
| 109.0 | 110.02 | 33.809 D | -0.832 C | 27.210 | 1445.6 |
| 110.0 | 111.07 | 33.821 D | -0.823 C | 27.219 | 1445.7 |
| 111.0 | 112.05 | 33.826 D | -0.819 C | 27.223 | 1445.7 |
| 112.0 | 113.07 | 33.833 D | -0.815 C | 27.229 | 1445.8 |
| 113.0 | 114.07 | 33.838 D | -0.808 C | 27.233 | 1445.8 |
| 114.0 | 115.11 | 33.850 D | -0.800 C | 27.242 | 1445.9 |
| 115.0 | 116.15 | 33.859 D | -0.790 C | 27.248 | 1446.0 |
| 116.0 | 117.14 | 33.868 D | -0.784 C | 27.256 | 1446.0 |
| 117.0 | 118.15 | 33.876 D | -0.776 C | 27.262 | 1446.1 |
| 118.0 | 119.17 | 33.883 D | -0.772 C | 27.267 | 1446.1 |
| 119.0 | 120.18 | 33.890 D | -0.767 C | 27.273 | 1446.2 |
| 120.0 | 121.17 | 33.897 D | -0.762 C | 27.278 | 1446.2 |
| 121.0 | 122.18 | 33.901 D | -0.758 C | 27.281 | 1446.3 |
| 122.0 | 123.20 | 33.905 D | -0.754 C | 27.285 | 1446.3 |
| 123.0 | 124.16 | 33.913 D | -0.747 C | 27.291 | 1446.4 |
| 124.0 | 125.19 | 33.919 D | -0.741 C | 27.295 | 1446.4 |
| 125.0 | 126.19 | 33.929 D | -0.735 C | 27.303 | 1446.5 |
| 126.0 | 127.23 | 33.935 D | -0.730 C | 27.308 | 1446.5 |
| 127.0 | 128.27 | 33.942 D | -0.725 C | 27.313 | 1446.6 |
| 128.0 | 129.28 | 33.952 D | -0.717 C | 27.321 | 1446.6 |
| 129.0 | 130.31 | 33.957 D | -0.713 C | 27.325 | 1446.7 |
| 130.0 | 131.29 | 33.963 D | -0.708 C | 27.330 | 1446.7 |
| 131.0 | 132.31 | 33.967 D | -0.705 C | 27.333 | 1446.8 |
| 132.0 | 133.32 | 33.972 D | -0.699 C | 27.337 | 1446.8 |
| 133.0 | 134.32 | 33.979 D | -0.695 C | 27.342 | 1446.9 |

| DEPTH | PRESS | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| 134.0 | 135.31 | 33.985 | D | -0.689 | C | 27.347 | 1446.9 |
| 135.0 | 136.33 | 33.989 | D | -0.685 | C | 27.349 | 1447.0 |
| 136.0 | 137.34 | 33.995 | D | -0.681 | C | 27.354 | 1447.0 |
| 137.0 | 138.37 | 34.000 | D | -0.673 | C | 27.358 | 1447.1 |
| 138.0 | 139.40 | 34.011 | D | -0.662 | C | 27.367 | 1447.1 |
| 139.0 | 140.39 | 34.023 | D | -0.657 | C | 27.376 | 1447.2 |
| 140.0 | 141.40 | 34.028 | D | -0.652 | C | 27.380 | 1447.2 |
| 141.0 | 142.39 | 34.034 | D | -0.648 | C | 27.384 | 1447.3 |
| 142.0 | 143.41 | 34.039 | D | -0.644 | C | 27.389 | 1447.3 |
| 143.0 | 144.43 | 34.045 | D | -0.638 | C | 27.393 | 1447.4 |
| 144.0 | 145.44 | 34.052 | D | -0.632 | C | 27.398 | 1447.4 |
| 145.0 | 146.46 | 34.058 | D | -0.628 | C | 27.403 | 1447.5 |
| 146.0 | 147.50 | 34.067 | D | -0.622 | C | 27.410 | 1447.5 |
| 147.0 | 148.48 | 34.071 | D | -0.613 | C | 27.413 | 1447.6 |
| 148.0 | 149.48 | 34.078 | D | -0.607 | C | 27.418 | 1447.7 |
| 149.0 | 150.49 | 34.085 | D | -0.601 | C | 27.424 | 1447.7 |
| 150.0 | 151.53 | 34.093 | D | -0.594 | C | 27.430 | 1447.8 |
| 151.0 | 152.56 | 34.101 | D | -0.586 | C | 27.436 | 1447.8 |
| 152.0 | 153.58 | 34.107 | D | -0.580 | C | 27.441 | 1447.9 |
| 153.0 | 154.55 | 34.113 | D | -0.571 | C | 27.445 | 1448.0 |
| 154.0 | 155.54 | 34.119 | D | -0.568 | C | 27.450 | 1448.0 |
| 155.0 | 156.57 | 34.127 | D | -0.560 | C | 27.456 | 1448.1 |
| 156.0 | 157.55 | 34.134 | D | -0.554 | C | 27.461 | 1448.1 |
| 157.0 | 158.62 | 34.144 | D | -0.547 | C | 27.470 | 1448.2 |
| 158.0 | 159.61 | 34.151 | D | -0.541 | C | 27.475 | 1448.2 |
| 159.0 | 160.64 | 34.160 | D | -0.532 | C | 27.482 | 1448.3 |
| 160.0 | 161.63 | 34.167 | D | -0.524 | C | 27.487 | 1448.4 |
| 161.0 | 162.65 | 34.176 | D | -0.517 | C | 27.494 | 1448.4 |
| 162.0 | 163.67 | 34.182 | D | -0.515 | C | 27.499 | 1448.5 |
| 163.0 | 164.69 | 34.190 | D | -0.507 | C | 27.504 | 1448.5 |
| 164.0 | 165.70 | 34.198 | D | -0.501 | C | 27.511 | 1448.6 |
| 165.0 | 166.68 | 34.204 | D | -0.492 | C | 27.516 | 1448.7 |
| 166.0 | 167.70 | 34.217 | D | -0.483 | C | 27.526 | 1448.7 |
| 167.0 | 168.69 | 34.226 | D | -0.469 | C | 27.532 | 1448.8 |
| 168.0 | 169.69 | 34.237 | D | -0.458 | C | 27.541 | 1448.9 |
| 169.0 | 170.70 | 34.246 | D | -0.450 | C | 27.548 | 1449.0 |
| 170.0 | 171.72 | 34.255 | D | -0.441 | C | 27.555 | 1449.0 |
| 171.0 | 172.72 | 34.270 | D | -0.426 | C | 27.566 | 1449.1 |
| 172.0 | 173.77 | 34.286 | D | -0.414 | C | 27.578 | 1449.2 |
| 173.0 | 174.76 | 34.294 | D | -0.410 | C | 27.584 | 1449.3 |
| 174.0 | 175.80 | 34.305 | D | -0.392 | C | 27.593 | 1449.4 |
| 175.0 | 176.83 | 34.319 | D | -0.382 | C | 27.604 | 1449.5 |
| 176.0 | 177.83 | 34.327 | D | -0.372 | C | 27.609 | 1449.6 |
| 177.0 | 178.86 | 34.337 | D | -0.366 | C | 27.617 | 1449.6 |
| 178.0 | 179.86 | 34.345 | D | -0.359 | C | 27.623 | 1449.7 |
| 179.0 | 180.83 | 34.354 | D | -0.347 | C | 27.631 | 1449.8 |
| 180.0 | 181.83 | 34.369 | D | -0.331 | C | 27.642 | 1449.9 |
| 181.0 | 182.82 | 34.385 | D | -0.313 | C | 27.654 | 1450.0 |
| 182.0 | 183.88 | 34.398 | D | -0.301 | C | 27.663 | 1450.1 |
| 183.0 | 184.89 | 34.404 | D | -0.292 | C | 27.668 | 1450.2 |
| 184.0 | 185.92 | 34.411 | D | -0.286 | C | 27.674 | 1450.2 |
| 185.0 | 186.94 | 34.419 | D | -0.279 | C | 27.680 | 1450.3 |
| 186.0 | 187.97 | 34.427 | D | -0.268 | C | 27.685 | 1450.3 |
| 187.0 | 188.96 | 34.435 | D | -0.260 | C | 27.692 | 1450.4 |
| 188.0 | 189.96 | 34.443 | D | -0.252 | C | 27.698 | 1450.5 |
| 189.0 | 190.95 | 34.449 | D | -0.242 | C | 27.702 | 1450.5 |
| 190.0 | 191.97 | 34.455 | D | -0.235 | C | 27.707 | 1450.6 |
| 191.0 | 193.00 | 34.458 | D | -0.229 | C | 27.709 | 1450.7 |
| 192.0 | 194.04 | 34.465 | D | -0.222 | C | 27.714 | 1450.7 |
| 193.0 | 195.06 | 34.465 | D | -0.217 | C | 27.714 | 1450.7 |
| 194.0 | 196.09 | 34.547 | D | -0.212 | C | 27.779 | 1450.9 |
| 195.0 | 197.07 | 34.466 | D | -0.205 | C | 27.714 | 1450.8 |
| 196.0 | 198.02 | 34.524 | D | -0.198 | C | 27.761 | 1451.0 |
| 197.0 | 199.07 | 34.517 | D | -0.192 | C | 27.754 | 1451.0 |
| 198.0 | 200.09 | 34.510 | D | -0.184 | C | 27.748 | 1451.0 |
| 199.0 | 201.11 | 34.512 | D | -0.177 | C | 27.750 | 1451.1 |
| 200.0 | 202.16 | 34.513 | D | -0.170 | C | 27.751 | 1451.2 |
| 201.0 | 203.18 | 34.520 | D | -0.163 | C | 27.755 | 1451.2 |
| 202.0 | 204.17 | 34.527 | D | -0.155 | C | 27.761 | 1451.3 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 203.0 | 205.14 | 34.533 D | -0.146 C | 27.765 | 1451.3 |
| 204.0 | 206.15 | 34.537 D | -0.138 C | 27.768 | 1451.4 |
| 205.0 | 207.20 | 34.543 D | -0.133 C | 27.773 | 1451.4 |
| 206.0 | 208.24 | 34.550 D | -0.127 C | 27.778 | 1451.5 |
| 207.0 | 209.24 | 34.553 D | -0.122 C | 27.780 | 1451.5 |
| 208.0 | 210.24 | 34.557 D | -0.118 C | 27.783 | 1451.6 |
| 209.0 | 211.21 | 34.560 D | -0.112 C | 27.785 | 1451.6 |
| 210.0 | 212.25 | 34.566 D | -0.107 C | 27.790 | 1451.7 |
| 211.0 | 213.27 | 34.572 D | -0.102 C | 27.795 | 1451.7 |
| 212.0 | 214.32 | 34.576 D | -0.097 C | 27.798 | 1451.8 |
| 213.0 | 215.32 | 34.579 D | -0.091 C | 27.800 | 1451.8 |
| 214.0 | 216.30 | 34.585 D | -0.087 C | 27.804 | 1451.9 |
| 215.0 | 217.29 | 34.590 D | -0.081 C | 27.808 | 1451.9 |
| 216.0 | 218.33 | 34.592 D | -0.075 C | 27.810 | 1452.0 |
| 217.0 | 219.37 | 34.596 D | -0.071 C | 27.812 | 1452.0 |
| 218.0 | 220.40 | 34.600 D | -0.064 C | 27.815 | 1452.1 |
| 219.0 | 221.40 | 34.606 D | -0.060 C | 27.820 | 1452.1 |
| 220.0 | 222.38 | 34.612 D | -0.053 C | 27.824 | 1452.2 |
| 221.0 | 223.37 | 34.616 D | -0.045 C | 27.827 | 1452.2 |
| 222.0 | 224.42 | 34.624 D | -0.043 C | 27.834 | 1452.2 |
| 248.0 | 250.77 | 34.700 D | 0.064 C | 27.890 | 1453.3 |
| 249.0 | 251.78 | 34.704 D | 0.067 C | 27.893 | 1453.3 |
| 250.0 | 252.85 | 34.706 D | 0.071 C | 27.894 | 1453.4 |
| 251.0 | 253.85 | 34.709 D | 0.074 C | 27.896 | 1453.4 |
| 252.0 | 254.89 | 34.709 D | 0.079 C | 27.896 | 1453.4 |
| 253.0 | 255.87 | 34.714 D | 0.079 C | 27.900 | 1453.4 |
| 254.0 | 256.86 | 34.718 D | 0.083 C | 27.903 | 1453.5 |
| 255.0 | 257.87 | 34.719 D | 0.086 C | 27.904 | 1453.5 |
| 256.0 | 258.87 | 34.722 D | 0.093 C | 27.906 | 1453.6 |
| 257.0 | 259.88 | 34.726 D | 0.095 C | 27.909 | 1453.6 |
| 258.0 | 260.93 | 34.729 D | 0.098 C | 27.911 | 1453.6 |
| 259.0 | 261.96 | 34.732 D | 0.102 C | 27.913 | 1453.7 |
| 260.0 | 262.98 | 34.735 D | 0.104 C | 27.916 | 1453.7 |
| 261.0 | 263.98 | 34.736 D | 0.108 C | 27.916 | 1453.7 |
| 262.0 | 264.97 | 34.739 D | 0.109 C | 27.918 | 1453.8 |
| 263.0 | 265.98 | 34.738 D | 0.111 C | 27.917 | 1453.8 |
| 264.0 | 267.02 | 34.741 D | 0.112 C | 27.920 | 1453.8 |
| 265.0 | 268.03 | 34.742 D | 0.115 C | 27.921 | 1453.9 |
| 266.0 | 269.06 | 34.746 D | 0.118 C | 27.924 | 1453.9 |
| 267.0 | 270.09 | 34.748 D | 0.121 C | 27.925 | 1453.9 |
| 268.0 | 271.06 | 34.749 D | 0.123 C | 27.926 | 1453.9 |
| 269.0 | 272.06 | 34.751 D | 0.124 C | 27.927 | 1454.0 |
| 270.0 | 273.04 | 34.754 D | 0.128 C | 27.929 | 1454.0 |
| 271.0 | 274.09 | 34.754 D | 0.131 C | 27.930 | 1454.0 |
| 272.0 | 275.12 | 34.757 D | 0.132 C | 27.932 | 1454.1 |
| 273.0 | 276.17 | 34.756 D | 0.134 C | 27.931 | 1454.1 |
| 274.0 | 277.17 | 34.760 D | 0.134 C | 27.934 | 1454.1 |
| 275.0 | 278.14 | 34.760 D | 0.135 C | 27.934 | 1454.1 |
| 276.0 | 279.16 | 34.760 D | 0.137 C | 27.934 | 1454.2 |
| 277.0 | 280.17 | 34.763 D | 0.140 C | 27.936 | 1454.2 |
| 278.0 | 281.19 | 34.766 D | 0.140 C | 27.939 | 1454.2 |
| 279.0 | 282.23 | 34.765 D | 0.144 C | 27.938 | 1454.2 |
| 280.0 | 283.24 | 34.767 D | 0.146 C | 27.939 | 1454.3 |
| 281.0 | 284.20 | 34.769 D | 0.150 C | 27.940 | 1454.3 |
| 282.0 | 285.24 | 34.771 D | 0.151 C | 27.942 | 1454.3 |
| 283.0 | 286.25 | 34.773 D | 0.152 C | 27.943 | 1454.4 |
| 284.0 | 287.30 | 34.774 D | 0.154 C | 27.944 | 1454.4 |
| 285.0 | 288.30 | 34.775 D | 0.155 C | 27.945 | 1454.4 |
| 286.0 | 289.32 | 34.775 D | 0.155 C | 27.945 | 1454.4 |
| 287.0 | 290.33 | 34.778 D | 0.156 C | 27.948 | 1454.5 |
| 288.0 | 291.33 | 34.775 D | 0.157 C | 27.945 | 1454.5 |
| 289.0 | 292.36 | 34.781 D | 0.159 C | 27.950 | 1454.5 |
| 290.0 | 293.37 | 34.782 D | 0.160 C | 27.950 | 1454.5 |
| 291.0 | 294.38 | 34.781 D | 0.164 C | 27.949 | 1454.6 |
| 292.0 | 295.39 | 34.782 D | 0.165 C | 27.950 | 1454.6 |
| 293.0 | 296.50 | 34.785 D | 0.165 C | 27.953 | 1454.6 |
| 294.0 | 297.39 | 34.786 D | 0.168 C | 27.953 | 1454.6 |
| 295.0 | 298.39 | 34.794 D | 0.171 C | 27.959 | 1454.7 |
| 296.0 | 299.42 | 34.791 D | 0.175 C | 27.957 | 1454.7 |

| DEPTH | PRESS | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| 297.0 | 300.44 | 34.794 | D | 0.176 | C | 27.959 | 1454.7 |
| 298.0 | 301.45 | 34.793 | D | 0.176 | C | 27.959 | 1454.7 |
| 299.0 | 302.49 | 34.790 | D | 0.178 | C | 27.956 | 1454.8 |
| 300.0 | 303.51 | 34.794 | D | 0.177 | C | 27.959 | 1454.8 |
| 301.0 | 304.53 | 34.794 | D | 0.178 | C | 27.959 | 1454.8 |
| 302.0 | 305.54 | 34.795 | D | 0.179 | C | 27.960 | 1454.8 |
| 303.0 | 306.56 | 34.797 | D | 0.182 | C | 27.962 | 1454.9 |
| 304.0 | 307.56 | 34.799 | D | 0.181 | C | 27.963 | 1454.9 |
| 305.0 | 308.54 | 34.799 | D | 0.183 | C | 27.963 | 1454.9 |
| 306.0 | 309.62 | 34.801 | D | 0.185 | C | 27.964 | 1454.9 |
| 307.0 | 310.59 | 34.803 | D | 0.187 | C | 27.966 | 1455.0 |
| 308.0 | 311.60 | 34.802 | D | 0.188 | C | 27.965 | 1455.0 |
| 309.0 | 312.60 | 34.803 | D | 0.189 | C | 27.966 | 1455.0 |
| 310.0 | 313.63 | 34.806 | D | 0.191 | C | 27.968 | 1455.0 |
| 311.0 | 314.64 | 34.807 | D | 0.192 | C | 27.969 | 1455.1 |
| 312.0 | 315.67 | 34.813 | D | 0.192 | C | 27.973 | 1455.1 |
| 313.0 | 316.65 | 34.809 | D | 0.194 | C | 27.970 | 1455.1 |
| 314.0 | 317.68 | 34.810 | D | 0.195 | C | 27.971 | 1455.1 |
| 315.0 | 318.69 | 34.810 | D | 0.198 | C | 27.971 | 1455.2 |
| 316.0 | 319.69 | 34.813 | D | 0.198 | C | 27.973 | 1455.2 |
| 317.0 | 320.65 | 34.813 | D | 0.199 | C | 27.973 | 1455.2 |
| 318.0 | 321.71 | 34.814 | D | 0.201 | C | 27.974 | 1455.2 |
| 319.0 | 322.65 | 34.813 | D | 0.202 | C | 27.973 | 1455.2 |
| 320.0 | 323.74 | 34.817 | D | 0.201 | C | 27.976 | 1455.3 |
| 321.0 | 324.72 | 34.817 | D | 0.202 | C | 27.976 | 1455.3 |
| 322.0 | 325.74 | 34.817 | D | 0.203 | C | 27.976 | 1455.3 |
| 323.0 | 326.78 | 34.817 | D | 0.203 | C | 27.976 | 1455.3 |
| 324.0 | 327.78 | 34.817 | D | 0.204 | C | 27.976 | 1455.3 |
| 325.0 | 328.78 | 34.817 | D | 0.204 | C | 27.976 | 1455.4 |
| 326.0 | 329.81 | 34.818 | D | 0.205 | C | 27.977 | 1455.4 |
| 327.0 | 330.82 | 34.818 | D | 0.205 | C | 27.977 | 1455.4 |
| 328.0 | 331.77 | 34.820 | D | 0.206 | C | 27.978 | 1455.4 |
| 329.0 | 332.80 | 34.820 | D | 0.207 | C | 27.979 | 1455.4 |
| 330.0 | 333.67 | 34.820 | D | 0.207 | C | 27.979 | 1455.5 |


EXPERIMENT 1069
TEMPERATURE, C
-2.00 -1.50 -1.00 -0.50 0.00 0.50 1.00
SALINITY 0/00
11.00 15.00 19.00 23.00 27.00 31.00 35.00
SIGMAT
15.00 18.00 21.00 24.00 27.00 30.00 33.00
DEPTH M
1
10
100
1000

CRUISE D'IBERVILLE FIORD-75 EXPER NO. 1069

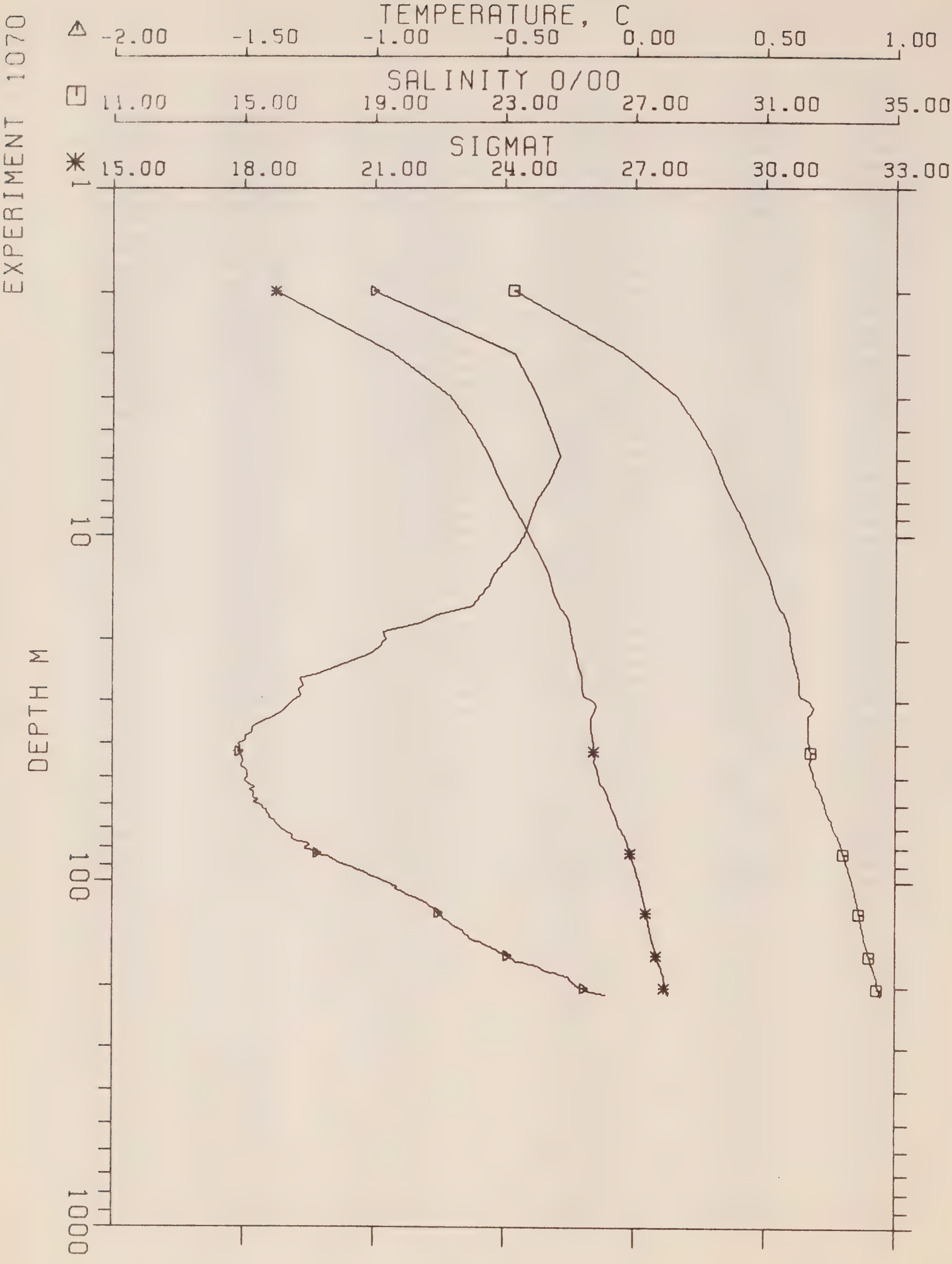
LAT N.80-35-30 LONG W.78-15-00 WATER DEPTH 200

DEPTH INCR. DATE 080475 LOCAL TIME 0953

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 2.0 | 2.10 | | -1.174 D | | |
| 3.0 | 3.10 | | -0.987 D | | |
| 4.0 | 4.15 | 27.609 E | -0.799 D | 22.202 | 1435.4 |
| 5.0 | 5.10 | 28.570 E | -0.616 D | 22.974 | 1437.6 |
| 6.0 | 6.10 | 29.089 E | -0.487 D | 23.389 | 1438.9 |
| 7.0 | 7.05 | 29.469 E | -0.410 D | 23.693 | 1439.8 |
| 8.0 | 8.15 | 29.670 E | -0.288 D | 23.852 | 1440.7 |
| 9.0 | 9.15 | 29.893 E | -0.384 D | 24.035 | 1440.6 |
| 10.0 | 10.10 | 30.116 E | -0.324 D | 24.212 | 1441.2 |
| 11.0 | 11.15 | 30.263 E | -0.267 D | 24.329 | 1441.7 |
| 12.0 | 12.15 | 30.581 E | -0.454 D | 24.591 | 1441.2 |
| 13.0 | 13.15 | 30.817 E | -0.334 D | 24.778 | 1442.1 |
| 14.0 | 14.15 | 31.126 E | -0.569 D | 25.034 | 1441.5 |
| 15.0 | 15.15 | 31.307 E | -0.845 D | 25.189 | 1440.5 |
| 16.0 | 16.15 | 31.420 E | -0.801 D | 25.278 | 1440.9 |
| 17.0 | 17.20 | 31.562 E | -0.883 D | 25.396 | 1440.7 |
| 18.0 | 18.20 | 31.670 E | -1.005 D | 25.486 | 1440.3 |
| 19.0 | 19.25 | 31.733 E | -1.059 D | 25.539 | 1440.1 |
| 20.0 | 20.25 | 31.789 E | -1.103 D | 25.585 | 1440.0 |
| 21.0 | 21.25 | 31.835 E | -1.172 D | 25.624 | 1439.8 |
| 22.0 | 22.25 | 31.852 E | -1.160 D | 25.637 | 1439.9 |
| 23.0 | 23.20 | 31.910 E | -1.200 D | 25.686 | 1439.8 |
| 24.0 | 24.20 | 31.944 E | -1.283 D | 25.715 | 1439.5 |
| 25.0 | 25.25 | 31.971 E | -1.293 D | 25.737 | 1439.5 |
| 26.0 | 26.25 | 31.998 E | -1.310 D | 25.760 | 1439.4 |
| 27.0 | 27.35 | 32.014 E | -1.325 D | 25.773 | 1439.4 |
| 28.0 | 28.35 | 32.045 E | -1.366 D | 25.799 | 1439.3 |
| 29.0 | 29.35 | 32.057 E | -1.385 D | 25.809 | 1439.2 |
| 30.0 | 30.30 | 32.068 E | -1.392 D | 25.818 | 1439.2 |
| 31.0 | 31.30 | 32.085 E | -1.412 D | 25.833 | 1439.2 |
| 32.0 | 32.30 | 32.109 E | -1.433 D | 25.852 | 1439.1 |
| 33.0 | 33.35 | 32.142 E | -1.459 D | 25.880 | 1439.1 |
| 34.0 | 34.35 | 32.160 E | -1.481 D | 25.895 | 1439.0 |
| 35.0 | 35.40 | 32.177 E | -1.497 D | 25.909 | 1439.0 |
| 36.0 | 36.40 | 32.186 E | -1.505 D | 25.917 | 1438.9 |
| 37.0 | 37.40 | 32.213 E | -1.535 D | 25.938 | 1438.9 |
| 38.0 | 38.30 | 32.229 E | -1.541 D | 25.952 | 1438.9 |
| 39.0 | 39.35 | 32.249 E | -1.572 D | 25.968 | 1438.8 |
| 40.0 | 40.45 | 32.263 E | -1.563 D | 25.980 | 1438.8 |
| 41.0 | 41.40 | 32.276 E | -1.567 D | 25.990 | 1438.9 |
| 42.0 | 42.40 | 32.289 E | -1.574 D | 26.001 | 1438.9 |
| 43.0 | 43.45 | 32.300 E | -1.577 D | 26.010 | 1438.9 |
| 44.0 | 44.50 | 32.333 E | -1.589 D | 26.037 | 1438.9 |
| 45.0 | 45.45 | 32.369 E | -1.624 D | 26.067 | 1438.8 |
| 46.0 | 46.45 | 32.395 E | -1.622 D | 26.088 | 1438.9 |
| 47.0 | 47.45 | 32.415 E | -1.628 D | 26.104 | 1438.9 |
| 48.0 | 48.50 | 32.428 E | -1.593 D | 26.114 | 1439.1 |
| 49.0 | 49.50 | 32.467 E | -1.593 D | 26.145 | 1439.1 |
| 50.0 | 50.45 | 32.503 E | -1.598 D | 26.175 | 1439.2 |
| 51.0 | 51.50 | 32.535 E | -1.592 D | 26.201 | 1439.3 |
| 52.0 | 52.50 | 32.561 E | -1.563 D | 26.221 | 1439.5 |
| 53.0 | 53.55 | 32.601 E | -1.601 D | 26.254 | 1439.4 |
| 54.0 | 54.60 | 32.617 E | -1.624 D | 26.268 | 1439.3 |
| 55.0 | 55.50 | 32.645 E | -1.606 D | 26.291 | 1439.4 |
| 56.0 | 56.50 | 32.674 E | -1.575 D | 26.313 | 1439.6 |
| 57.0 | 57.60 | 32.705 E | -1.547 D | 26.338 | 1439.8 |
| 58.0 | 58.60 | 32.751 E | -1.565 D | 26.376 | 1439.8 |
| 59.0 | 59.65 | 32.783 E | -1.597 D | 26.402 | 1439.7 |
| 60.0 | 60.60 | 32.807 E | -1.576 D | 26.421 | 1439.9 |
| 61.0 | 61.60 | 32.835 E | -1.583 D | 26.444 | 1439.9 |
| 62.0 | 62.60 | 32.851 E | -1.562 D | 26.456 | 1440.0 |
| 63.0 | 63.65 | 32.883 E | -1.562 D | 26.482 | 1440.1 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 64.0 | 64.65 | 32.914 E | -1.571 D | 26.508 | 1440.1 |
| 65.0 | 65.65 | 32.943 E | -1.564 D | 26.531 | 1440.2 |
| 66.0 | 66.60 | 32.963 E | -1.547 D | 26.547 | 1440.3 |
| 67.0 | 67.60 | 32.987 E | -1.535 D | 26.566 | 1440.4 |
| 68.0 | 68.65 | 33.006 E | -1.513 D | 26.581 | 1440.6 |
| 69.0 | 69.70 | 33.039 E | -1.468 D | 26.606 | 1440.9 |
| 70.0 | 70.75 | 33.063 E | -1.470 D | 26.626 | 1440.9 |
| 71.0 | 71.75 | 33.085 E | -1.452 D | 26.643 | 1441.0 |
| 72.0 | 72.70 | 33.108 E | -1.441 D | 26.662 | 1441.1 |
| 73.0 | 73.65 | 33.129 E | -1.431 D | 26.679 | 1441.2 |
| 74.0 | 74.70 | 33.153 E | -1.422 D | 26.698 | 1441.3 |
| 75.0 | 75.70 | 33.182 E | -1.412 D | 26.721 | 1441.4 |
| 76.0 | 76.75 | 33.223 E | -1.478 D | 26.756 | 1441.2 |
| 77.0 | 77.85 | 33.243 E | -1.519 D | 26.773 | 1441.0 |
| 78.0 | 78.85 | 33.267 E | -1.503 D | 26.792 | 1441.2 |
| 79.0 | 79.85 | 33.307 E | -1.512 D | 26.824 | 1441.2 |
| 80.0 | 80.80 | 33.339 E | -1.557 D | 26.851 | 1441.0 |
| 81.0 | 81.80 | 33.351 E | -1.580 D | 26.862 | 1441.0 |
| 82.0 | 82.85 | 33.380 E | -1.621 D | 26.887 | 1440.8 |
| 83.0 | 83.80 | 33.390 E | -1.661 D | 26.895 | 1440.7 |
| 84.0 | 84.80 | 33.400 E | -1.674 D | 26.904 | 1440.6 |
| 85.0 | 85.85 | 33.413 E | -1.679 D | 26.914 | 1440.7 |
| 86.0 | 86.85 | 33.432 E | -1.662 D | 26.929 | 1440.8 |
| 87.0 | 87.90 | 33.449 E | -1.637 D | 26.943 | 1440.9 |
| 88.0 | 88.90 | 33.466 E | -1.600 D | 26.956 | 1441.2 |
| 89.0 | 89.95 | 33.483 E | -1.566 D | 26.969 | 1441.4 |
| 90.0 | 90.95 | 33.500 E | -1.544 D | 26.982 | 1441.5 |
| 91.0 | 92.00 | 33.513 E | -1.515 D | 26.992 | 1441.7 |
| 92.0 | 92.95 | 33.521 E | -1.467 D | 26.997 | 1441.9 |
| 93.0 | 93.95 | 33.544 E | -1.430 D | 27.015 | 1442.2 |
| 94.0 | 94.95 | 33.544 E | -1.357 D | 27.013 | 1442.5 |
| 95.0 | 95.95 | 33.570 E | -1.286 D | 27.031 | 1442.9 |
| 96.0 | 96.95 | 33.593 E | -1.236 D | 27.048 | 1443.2 |
| 97.0 | 98.00 | 33.606 E | -1.193 D | 27.058 | 1443.4 |
| 98.0 | 98.95 | 33.618 E | -1.142 D | 27.066 | 1443.7 |
| 99.0 | 99.95 | 33.647 E | -1.091 D | 27.088 | 1444.0 |
| 100.0 | 100.95 | 33.664 D | -1.066 C | 27.101 | 1444.1 |
| 101.0 | 101.95 | 33.674 D | -1.052 C | 27.109 | 1444.2 |
| 102.0 | 103.00 | 33.681 D | -1.038 C | 27.114 | 1444.3 |
| 103.0 | 104.00 | 33.690 D | -1.013 C | 27.120 | 1444.5 |
| 104.0 | 105.05 | 33.702 D | -0.995 C | 27.129 | 1444.6 |
| 105.0 | 106.05 | 33.718 D | -0.960 C | 27.141 | 1444.8 |
| 106.0 | 107.00 | 33.748 D | -0.998 C | 27.166 | 1444.7 |
| 107.0 | 108.00 | 33.744 D | -0.983 C | 27.162 | 1444.8 |
| 108.0 | 109.05 | 33.752 D | -0.944 C | 27.168 | 1445.0 |
| 109.0 | 110.10 | 33.757 D | -0.898 C | 27.170 | 1445.2 |
| 110.0 | 111.15 | 33.770 D | -0.864 C | 27.179 | 1445.4 |
| 111.0 | 112.15 | 33.781 D | -0.852 C | 27.188 | 1445.5 |
| 112.0 | 113.15 | 33.789 D | -0.840 C | 27.194 | 1445.6 |
| 113.0 | 114.15 | 33.801 D | -0.822 C | 27.203 | 1445.7 |
| 114.0 | 115.15 | 33.812 D | -0.820 C | 27.212 | 1445.7 |
| 115.0 | 116.15 | 33.823 D | -0.801 C | 27.220 | 1445.9 |
| 116.0 | 117.20 | 33.830 D | -0.790 C | 27.225 | 1445.9 |
| 117.0 | 118.15 | 33.841 D | -0.784 C | 27.234 | 1446.0 |
| 118.0 | 119.25 | 33.847 D | -0.778 C | 27.239 | 1446.0 |
| 119.0 | 120.25 | 33.854 D | -0.770 C | 27.244 | 1446.1 |
| 120.0 | 121.25 | 33.863 D | -0.762 C | 27.251 | 1446.2 |
| 121.0 | 122.25 | 33.872 D | -0.753 C | 27.258 | 1446.2 |
| 122.0 | 123.25 | 33.883 D | -0.744 C | 27.266 | 1446.3 |
| 123.0 | 124.30 | 33.892 D | -0.737 C | 27.273 | 1446.4 |
| 124.0 | 125.30 | 33.898 D | -0.731 C | 27.278 | 1446.4 |
| 125.0 | 126.30 | 33.905 D | -0.725 C | 27.284 | 1446.5 |
| 126.0 | 127.30 | 33.913 D | -0.718 C | 27.289 | 1446.6 |
| 127.0 | 128.30 | 33.919 D | -0.711 C | 27.294 | 1446.6 |
| 128.0 | 129.30 | 33.930 D | -0.706 C | 27.302 | 1446.7 |
| 129.0 | 130.30 | 33.936 D | -0.700 C | 27.308 | 1446.7 |
| 130.0 | 131.35 | 33.942 D | -0.694 C | 27.312 | 1446.8 |
| 131.0 | 132.35 | 33.948 D | -0.689 C | 27.317 | 1446.8 |
| 132.0 | 133.40 | 33.955 D | -0.683 C | 27.322 | 1446.9 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 133.0 | 134.40 | 33.962 D | -0.675 C | 27.328 | 1446.9 |
| 134.0 | 135.40 | 33.972 D | -0.670 C | 27.335 | 1447.0 |
| 135.0 | 136.45 | 33.980 D | -0.663 C | 27.342 | 1447.1 |
| 136.0 | 137.45 | 33.987 D | -0.654 C | 27.347 | 1447.1 |
| 137.0 | 138.45 | 33.996 D | -0.650 C | 27.354 | 1447.2 |
| 138.0 | 139.45 | 34.002 D | -0.643 C | 27.359 | 1447.2 |
| 139.0 | 140.40 | 34.010 D | -0.638 C | 27.365 | 1447.3 |
| 140.0 | 141.45 | 34.016 D | -0.632 C | 27.369 | 1447.3 |
| 141.0 | 142.45 | 34.021 D | -0.627 C | 27.373 | 1447.4 |
| 142.0 | 143.40 | 34.027 D | -0.623 C | 27.378 | 1447.4 |
| 143.0 | 144.50 | 34.036 D | -0.613 C | 27.385 | 1447.5 |
| 144.0 | 145.50 | 34.042 D | -0.610 C | 27.389 | 1447.5 |
| 145.0 | 146.50 | 34.049 D | -0.605 C | 27.395 | 1447.6 |
| 146.0 | 147.60 | 34.055 D | -0.599 C | 27.400 | 1447.6 |
| 147.0 | 148.60 | 34.060 D | -0.593 C | 27.404 | 1447.7 |
| 148.0 | 149.55 | 34.070 D | -0.585 C | 27.411 | 1447.8 |
| 149.0 | 150.60 | 34.077 D | -0.575 C | 27.417 | 1447.8 |
| 150.0 | 151.60 | 34.087 D | -0.569 C | 27.424 | 1447.9 |
| 151.0 | 152.60 | 34.097 D | -0.561 C | 27.432 | 1448.0 |
| 152.0 | 153.50 | 34.105 D | -0.554 C | 27.438 | 1448.0 |
| 153.0 | 154.55 | 34.112 D | -0.549 C | 27.443 | 1448.1 |
| 154.0 | 155.60 | 34.117 D | -0.543 C | 27.448 | 1448.1 |
| 155.0 | 156.60 | 34.127 D | -0.535 C | 27.455 | 1448.2 |
| 156.0 | 157.65 | 34.134 D | -0.527 C | 27.460 | 1448.2 |
| 157.0 | 158.65 | 34.141 D | -0.524 C | 27.466 | 1448.3 |
| 158.0 | 159.65 | 34.145 D | -0.520 C | 27.469 | 1448.3 |
| 159.0 | 160.60 | 34.151 D | -0.513 C | 27.474 | 1448.4 |
| 160.0 | 161.60 | 34.158 D | -0.505 C | 27.479 | 1448.4 |
| 161.0 | 162.65 | 34.167 D | -0.497 C | 27.486 | 1448.5 |
| 162.0 | 163.65 | 34.177 D | -0.492 C | 27.493 | 1448.6 |
| 163.0 | 164.70 | 34.186 D | -0.482 C | 27.500 | 1448.6 |
| 164.0 | 165.70 | 34.192 D | -0.478 C | 27.505 | 1448.7 |
| 165.0 | 166.70 | 34.201 D | -0.468 C | 27.512 | 1448.8 |
| 166.0 | 167.70 | 34.211 D | -0.460 C | 27.520 | 1448.8 |
| 167.0 | 168.75 | 34.220 D | -0.447 C | 27.526 | 1448.9 |
| 168.0 | 169.75 | 34.242 D | -0.427 C | 27.543 | 1449.1 |
| 169.0 | 170.75 | 34.257 D | -0.414 C | 27.555 | 1449.2 |
| 170.0 | 171.75 | 34.272 D | -0.401 C | 27.566 | 1449.2 |
| 171.0 | 172.75 | 34.283 D | -0.391 C | 27.575 | 1449.3 |
| 172.0 | 173.75 | 34.290 D | -0.383 C | 27.580 | 1449.4 |
| 173.0 | 174.85 | 34.301 D | -0.374 C | 27.588 | 1449.5 |
| 174.0 | 175.80 | 34.312 D | -0.364 C | 27.597 | 1449.5 |
| 175.0 | 176.80 | 34.324 D | -0.351 C | 27.606 | 1449.6 |
| 176.0 | 177.85 | 34.332 D | -0.343 C | 27.612 | 1449.7 |
| 177.0 | 178.90 | 34.341 D | -0.336 C | 27.619 | 1449.8 |
| 178.0 | 179.85 | 34.348 D | -0.329 C | 27.624 | 1449.8 |
| 179.0 | 180.85 | 34.353 D | -0.323 C | 27.628 | 1449.9 |
| 180.0 | 181.95 | 34.361 D | -0.313 C | 27.634 | 1449.9 |


EXPERIMENT 1070
TEMPERATURE, C
-2.00 -1.50 -1.00 -0.50 0.00 0.50 1.00
SALINITY O/OO
11.00 15.00 19.00 23.00 27.00 31.00 35.00
SIGMAT
15.00 18.00 21.00 24.00 27.00 30.00 33.00
DEPTH M
1
10
100
1000

CRUISE D'IBERVILLE FIORD-75 EXPER NO. 1070

LAT N.80-35-40 LONG W.79-56-00 WATER DEPTH 241

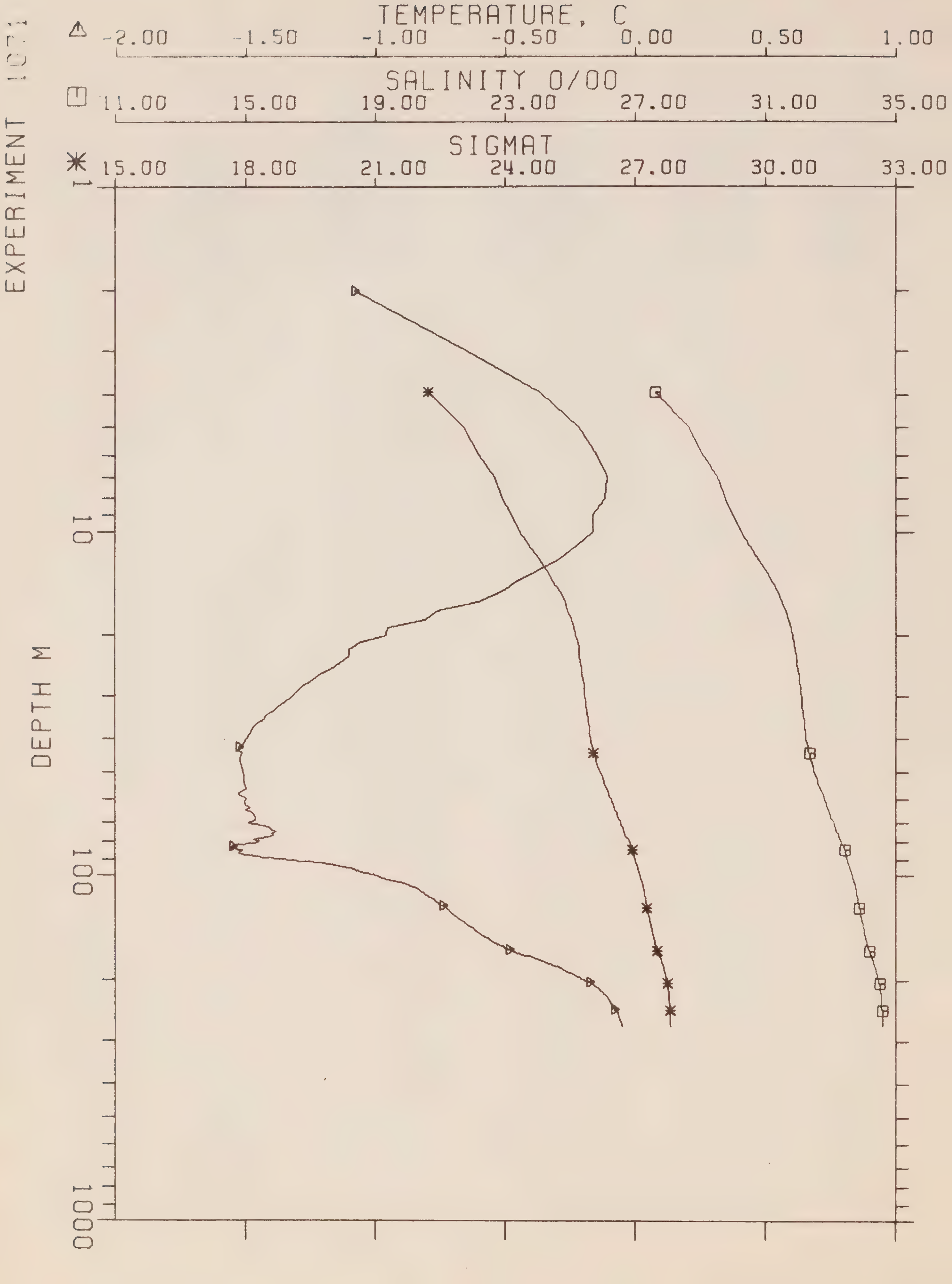
DEPTH INCR. DATE 100475 LOCAL TIME 1455

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 2.0 | 1.98 | 23.281 E | -1.007 D | 18.715 | 1428.4 |
| 3.0 | 3.00 | 26.639 E | -0.467 D | 21.415 | 1435.6 |
| 4.0 | 3.98 | 28.277 E | -0.375 D | 22.732 | 1438.3 |
| 5.0 | 4.95 | 28.974 E | -0.323 D | 23.292 | 1439.5 |
| 6.0 | 5.94 | 29.424 E | -0.285 D | 23.653 | 1440.3 |
| 7.0 | 6.95 | 29.722 E | -0.323 D | 23.894 | 1440.6 |
| 8.0 | 7.94 | 29.993 E | -0.376 D | 24.114 | 1440.7 |
| 9.0 | 8.94 | 30.313 E | -0.398 D | 24.373 | 1441.1 |
| 10.0 | 9.93 | 30.532 E | -0.418 D | 24.550 | 1441.3 |
| 11.0 | 10.95 | 30.734 E | -0.453 D | 24.714 | 1441.4 |
| 12.0 | 11.95 | 30.917 E | -0.498 D | 24.863 | 1441.5 |
| 13.0 | 12.96 | 31.119 E | -0.538 D | 25.028 | 1441.6 |
| 14.0 | 13.94 | 31.192 E | -0.556 D | 25.087 | 1441.6 |
| 15.0 | 14.96 | 31.262 E | -0.588 D | 25.145 | 1441.6 |
| 16.0 | 15.95 | 31.401 E | -0.618 D | 25.257 | 1441.7 |
| 17.0 | 16.93 | 31.599 E | -0.759 D | 25.422 | 1441.3 |
| 18.0 | 17.96 | 31.682 E | -0.813 D | 25.491 | 1441.2 |
| 19.0 | 18.95 | 31.741 E | -0.967 D | 25.543 | 1440.6 |
| 20.0 | 19.98 | 31.773 E | -0.955 D | 25.568 | 1440.7 |
| 21.0 | 20.98 | 31.817 E | -0.982 D | 25.605 | 1440.6 |
| 22.0 | 21.96 | 31.854 E | -1.017 D | 25.636 | 1440.5 |
| 23.0 | 23.00 | 31.890 E | -1.078 D | 25.667 | 1440.3 |
| 24.0 | 23.97 | 31.946 E | -1.145 D | 25.713 | 1440.1 |
| 25.0 | 24.94 | 31.997 E | -1.212 D | 25.757 | 1439.9 |
| 26.0 | 25.98 | 32.031 E | -1.284 D | 25.785 | 1439.6 |
| 27.0 | 26.99 | 32.042 E | -1.270 D | 25.794 | 1439.7 |
| 28.0 | 28.00 | 32.055 E | -1.289 D | 25.805 | 1439.6 |
| 29.0 | 28.97 | 32.069 E | -1.282 D | 25.816 | 1439.7 |
| 30.0 | 30.01 | 32.345 E | -1.308 D | 26.040 | 1440.0 |
| 31.0 | 31.02 | 32.461 E | -1.330 D | 26.135 | 1440.1 |
| 32.0 | 32.04 | 32.423 E | -1.349 D | 26.104 | 1439.9 |
| 33.0 | 33.00 | 32.337 E | -1.373 D | 26.035 | 1439.7 |
| 34.0 | 34.02 | 32.302 E | -1.407 D | 26.008 | 1439.5 |
| 35.0 | 35.01 | 32.302 E | -1.449 D | 26.009 | 1439.4 |
| 36.0 | 36.01 | 32.306 E | -1.466 D | 26.013 | 1439.3 |
| 37.0 | 36.97 | 32.312 E | -1.466 D | 26.018 | 1439.3 |
| 38.0 | 37.99 | 32.332 E | -1.490 D | 26.034 | 1439.2 |
| 39.0 | 38.99 | 32.330 E | -1.489 D | 26.032 | 1439.3 |
| 40.0 | 39.98 | 32.357 E | -1.519 D | 26.055 | 1439.2 |
| 41.0 | 41.00 | 32.376 E | -1.509 D | 26.070 | 1439.3 |
| 42.0 | 42.03 | 32.382 E | -1.522 D | 26.075 | 1439.2 |
| 43.0 | 43.03 | 32.401 E | -1.512 D | 26.091 | 1439.3 |
| 44.0 | 44.04 | 32.409 E | -1.505 D | 26.096 | 1439.4 |
| 45.0 | 45.03 | 32.378 E | -1.499 D | 26.072 | 1439.4 |
| 46.0 | 46.05 | 32.408 E | -1.511 D | 26.096 | 1439.4 |
| 47.0 | 47.06 | 32.450 E | -1.495 D | 26.130 | 1439.5 |
| 48.0 | 48.06 | 32.477 E | -1.484 D | 26.151 | 1439.6 |
| 49.0 | 49.06 | 32.485 E | -1.484 D | 26.158 | 1439.7 |
| 50.0 | 50.06 | 32.507 E | -1.485 D | 26.176 | 1439.7 |
| 51.0 | 51.06 | 32.542 E | -1.493 D | 26.205 | 1439.7 |
| 52.0 | 52.09 | 32.579 E | -1.480 D | 26.234 | 1439.9 |
| 53.0 | 53.08 | 32.628 E | -1.455 D | 26.273 | 1440.1 |
| 54.0 | 54.08 | 32.683 E | -1.475 D | 26.318 | 1440.1 |
| 55.0 | 55.06 | 32.720 E | -1.461 D | 26.348 | 1440.2 |
| 56.0 | 56.09 | 32.752 E | -1.462 D | 26.374 | 1440.3 |
| 57.0 | 57.11 | 32.776 E | -1.458 D | 26.393 | 1440.3 |
| 58.0 | 58.10 | 32.798 E | -1.447 D | 26.410 | 1440.4 |
| 59.0 | 59.13 | 32.829 E | -1.460 D | 26.436 | 1440.4 |
| 60.0 | 60.09 | 32.849 E | -1.432 D | 26.452 | 1440.6 |
| 61.0 | 61.11 | 32.872 E | -1.426 D | 26.470 | 1440.7 |
| 62.0 | 62.11 | 32.896 E | -1.409 D | 26.489 | 1440.8 |
| 63.0 | 63.16 | 32.926 E | -1.410 D | 26.513 | 1440.9 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 64.0 | 64.19 | 32.961 E | -1.402 D | 26.542 | 1441.0 |
| 65.0 | 65.13 | 32.992 E | -1.398 D | 26.566 | 1441.1 |
| 66.0 | 66.14 | 33.024 E | -1.386 D | 26.592 | 1441.2 |
| 67.0 | 67.12 | 33.046 E | -1.381 D | 26.610 | 1441.2 |
| 68.0 | 68.11 | 33.063 E | -1.372 D | 26.623 | 1441.3 |
| 69.0 | 69.15 | 33.090 E | -1.361 D | 26.645 | 1441.4 |
| 70.0 | 70.15 | 33.117 E | -1.353 D | 26.667 | 1441.5 |
| 71.0 | 71.15 | 33.146 E | -1.341 D | 26.689 | 1441.6 |
| 72.0 | 72.14 | 33.186 E | -1.322 D | 26.722 | 1441.8 |
| 73.0 | 73.16 | 33.229 E | -1.310 D | 26.756 | 1441.9 |
| 74.0 | 74.19 | 33.258 E | -1.309 D | 26.779 | 1442.0 |
| 75.0 | 75.20 | 33.284 E | -1.313 D | 26.801 | 1442.0 |
| 76.0 | 76.25 | 33.313 E | -1.288 D | 26.823 | 1442.2 |
| 77.0 | 77.21 | 33.331 E | -1.256 D | 26.837 | 1442.4 |
| 78.0 | 78.23 | 33.346 E | -1.245 D | 26.848 | 1442.5 |
| 79.0 | 79.23 | 33.359 E | -1.262 D | 26.860 | 1442.4 |
| 80.0 | 80.23 | 33.375 E | -1.266 D | 26.873 | 1442.5 |
| 81.0 | 81.21 | 33.393 E | -1.221 D | 26.886 | 1442.7 |
| 82.0 | 82.24 | 33.412 E | -1.221 D | 26.902 | 1442.8 |
| 83.0 | 83.22 | 33.433 E | -1.228 D | 26.919 | 1442.8 |
| 84.0 | 84.24 | 33.447 E | -1.177 D | 26.928 | 1443.0 |
| 85.0 | 85.29 | 33.465 E | -1.163 D | 26.943 | 1443.2 |
| 86.0 | 86.24 | 33.481 E | -1.152 D | 26.955 | 1443.2 |
| 87.0 | 87.28 | 33.495 E | -1.139 D | 26.966 | 1443.3 |
| 88.0 | 88.26 | 33.513 E | -1.124 D | 26.980 | 1443.5 |
| 89.0 | 89.26 | 33.532 E | -1.108 D | 26.995 | 1443.6 |
| 90.0 | 90.26 | 33.550 E | -1.092 D | 27.009 | 1443.7 |
| 91.0 | 91.28 | 33.561 E | -1.077 D | 27.018 | 1443.8 |
| 92.0 | 92.31 | 33.578 E | -1.059 D | 27.031 | 1443.9 |
| 93.0 | 93.30 | 33.596 E | -1.038 D | 27.045 | 1444.1 |
| 94.0 | 94.29 | 33.612 E | -1.024 D | 27.057 | 1444.2 |
| 95.0 | 95.32 | 33.624 E | -1.013 D | 27.066 | 1444.2 |
| 96.0 | 96.32 | 33.633 E | -1.004 D | 27.074 | 1444.3 |
| 97.0 | 97.34 | 33.648 E | -0.988 D | 27.085 | 1444.4 |
| 98.0 | 98.34 | 33.661 E | -0.973 D | 27.095 | 1444.5 |
| 99.0 | 99.39 | 33.678 E | -0.953 D | 27.108 | 1444.7 |
| 100.0 | 100.36 | 33.695 D | -0.940 C | 27.121 | 1444.8 |
| 101.0 | 101.38 | 33.708 D | -0.930 C | 27.132 | 1444.8 |
| 102.0 | 102.37 | 33.720 D | -0.920 C | 27.141 | 1444.9 |
| 103.0 | 103.38 | 33.727 D | -0.912 C | 27.146 | 1445.0 |
| 104.0 | 104.39 | 33.736 D | -0.920 C | 27.154 | 1445.0 |
| 105.0 | 105.41 | 33.747 D | -0.914 C | 27.162 | 1445.0 |
| 106.0 | 106.38 | 33.753 D | -0.887 C | 27.166 | 1445.2 |
| 107.0 | 107.41 | 33.767 D | -0.881 C | 27.178 | 1445.3 |
| 108.0 | 108.42 | 33.777 D | -0.872 C | 27.185 | 1445.3 |
| 109.0 | 109.42 | 33.787 D | -0.858 C | 27.193 | 1445.4 |
| 110.0 | 110.43 | 33.800 D | -0.839 C | 27.203 | 1445.6 |
| 111.0 | 111.43 | 33.810 D | -0.829 C | 27.210 | 1445.6 |
| 112.0 | 112.42 | 33.819 D | -0.821 C | 27.218 | 1445.7 |
| 113.0 | 113.43 | 33.826 D | -0.814 C | 27.223 | 1445.8 |
| 114.0 | 114.46 | 33.838 D | -0.802 C | 27.232 | 1445.8 |
| 115.0 | 115.42 | 33.846 D | -0.796 C | 27.238 | 1445.9 |
| 116.0 | 116.46 | 33.854 D | -0.788 C | 27.245 | 1446.0 |
| 117.0 | 117.47 | 33.861 D | -0.782 C | 27.250 | 1446.0 |
| 118.0 | 118.45 | 33.872 D | -0.774 C | 27.259 | 1446.1 |
| 119.0 | 119.46 | 33.879 D | -0.767 C | 27.264 | 1446.1 |
| 120.0 | 120.48 | 33.886 D | -0.767 C | 27.269 | 1446.2 |
| 121.0 | 121.50 | 33.892 D | -0.761 C | 27.274 | 1446.2 |
| 122.0 | 122.50 | 33.898 D | -0.756 C | 27.279 | 1446.3 |
| 123.0 | 123.52 | 33.907 D | -0.749 C | 27.286 | 1446.3 |
| 124.0 | 124.54 | 33.917 D | -0.740 C | 27.294 | 1446.4 |
| 125.0 | 125.55 | 33.923 D | -0.737 C | 27.299 | 1446.4 |
| 126.0 | 126.58 | 33.926 D | -0.733 C | 27.301 | 1446.5 |
| 127.0 | 127.58 | 33.931 D | -0.729 C | 27.304 | 1446.5 |
| 128.0 | 128.57 | 33.938 D | -0.724 C | 27.310 | 1446.6 |
| 129.0 | 129.60 | 33.949 D | -0.715 C | 27.319 | 1446.7 |
| 130.0 | 130.58 | 33.955 D | -0.709 C | 27.323 | 1446.7 |
| 131.0 | 131.58 | 33.962 D | -0.703 C | 27.329 | 1446.8 |
| 132.0 | 132.55 | 33.969 D | -0.698 C | 27.334 | 1446.8 |

| DEPTH | PRESS | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| 133.0 | 133.58 | 33.976 | D | -0.690 | C | 27.339 | 1446.9 |
| 134.0 | 134.58 | 33.984 | D | -0.681 | C | 27.346 | 1446.9 |
| 135.0 | 135.58 | 34.000 | D | -0.674 | C | 27.358 | 1447.0 |
| 136.0 | 136.62 | 34.003 | D | -0.667 | C | 27.360 | 1447.1 |
| 137.0 | 137.63 | 34.013 | D | -0.660 | C | 27.368 | 1447.1 |
| 138.0 | 138.65 | 34.020 | D | -0.655 | C | 27.374 | 1447.2 |
| 139.0 | 139.67 | 34.022 | D | -0.653 | C | 27.375 | 1447.2 |
| 140.0 | 140.66 | 34.028 | D | -0.649 | C | 27.380 | 1447.3 |
| 141.0 | 141.66 | 34.032 | D | -0.644 | C | 27.383 | 1447.3 |
| 142.0 | 142.64 | 34.039 | D | -0.641 | C | 27.388 | 1447.3 |
| 143.0 | 143.66 | 34.042 | D | -0.637 | C | 27.390 | 1447.4 |
| 144.0 | 144.66 | 34.047 | D | -0.633 | C | 27.395 | 1447.4 |
| 145.0 | 145.71 | 34.055 | D | -0.626 | C | 27.401 | 1447.5 |
| 146.0 | 146.74 | 34.068 | D | -0.614 | C | 27.411 | 1447.6 |
| 147.0 | 147.74 | 34.077 | D | -0.605 | C | 27.418 | 1447.6 |
| 148.0 | 148.77 | 34.090 | D | -0.592 | C | 27.428 | 1447.7 |
| 149.0 | 149.71 | 34.096 | D | -0.584 | C | 27.432 | 1447.8 |
| 150.0 | 150.72 | 34.105 | D | -0.576 | C | 27.439 | 1447.9 |
| 151.0 | 151.71 | 34.111 | D | -0.572 | C | 27.444 | 1447.9 |
| 152.0 | 152.75 | 34.114 | D | -0.568 | C | 27.446 | 1447.9 |
| 153.0 | 153.75 | 34.130 | D | -0.552 | C | 27.458 | 1448.1 |
| 154.0 | 154.80 | 34.140 | D | -0.547 | C | 27.466 | 1448.1 |
| 155.0 | 155.79 | 34.146 | D | -0.539 | C | 27.471 | 1448.2 |
| 156.0 | 156.76 | 34.154 | D | -0.530 | C | 27.477 | 1448.2 |
| 157.0 | 157.79 | 34.161 | D | -0.527 | C | 27.482 | 1448.3 |
| 158.0 | 158.80 | 34.170 | D | -0.518 | C | 27.489 | 1448.4 |
| 159.0 | 159.80 | 34.177 | D | -0.512 | C | 27.494 | 1448.4 |
| 160.0 | 160.80 | 34.185 | D | -0.504 | C | 27.500 | 1448.5 |
| 161.0 | 161.80 | 34.193 | D | -0.495 | C | 27.507 | 1448.5 |
| 162.0 | 162.81 | 34.197 | D | -0.491 | C | 27.510 | 1448.6 |
| 163.0 | 163.81 | 34.206 | D | -0.485 | C | 27.517 | 1448.6 |
| 164.0 | 164.81 | 34.214 | D | -0.479 | C | 27.523 | 1448.7 |
| 165.0 | 165.81 | 34.222 | D | -0.471 | C | 27.529 | 1448.8 |
| 166.0 | 166.81 | 34.233 | D | -0.461 | C | 27.537 | 1448.8 |
| 167.0 | 167.82 | 34.235 | D | -0.458 | C | 27.539 | 1448.9 |
| 168.0 | 168.82 | 34.238 | D | -0.459 | C | 27.542 | 1448.9 |
| 169.0 | 169.85 | 34.246 | D | -0.448 | C | 27.547 | 1449.0 |
| 170.0 | 170.83 | 34.264 | D | -0.429 | C | 27.561 | 1449.1 |
| 171.0 | 171.84 | 34.284 | D | -0.410 | C | 27.576 | 1449.2 |
| 172.0 | 172.89 | 34.293 | D | -0.399 | C | 27.583 | 1449.3 |
| 173.0 | 173.89 | 34.304 | D | -0.390 | C | 27.592 | 1449.4 |
| 174.0 | 174.89 | 34.323 | D | -0.369 | C | 27.606 | 1449.5 |
| 175.0 | 175.90 | 34.330 | D | -0.366 | C | 27.612 | 1449.6 |
| 176.0 | 176.92 | 34.336 | D | -0.359 | C | 27.616 | 1449.6 |
| 177.0 | 177.96 | 34.341 | D | -0.355 | C | 27.620 | 1449.7 |
| 178.0 | 178.96 | 34.349 | D | -0.348 | C | 27.626 | 1449.7 |
| 179.0 | 179.98 | 34.352 | D | -0.343 | C | 27.628 | 1449.8 |
| 180.0 | 180.99 | 34.361 | D | -0.335 | C | 27.635 | 1449.8 |
| 181.0 | 181.98 | 34.373 | D | -0.321 | C | 27.644 | 1449.9 |
| 182.0 | 183.00 | 34.387 | D | -0.305 | C | 27.655 | 1450.0 |
| 183.0 | 183.98 | 34.396 | D | -0.292 | C | 27.662 | 1450.1 |
| 184.0 | 184.95 | 34.412 | D | -0.279 | C | 27.674 | 1450.2 |
| 185.0 | 185.99 | 34.419 | D | -0.270 | C | 27.679 | 1450.3 |
| 186.0 | 187.01 | 34.423 | D | -0.264 | C | 27.682 | 1450.3 |
| 187.0 | 187.98 | 34.430 | D | -0.254 | C | 27.687 | 1450.4 |
| 188.0 | 189.03 | 34.438 | D | -0.251 | C | 27.694 | 1450.5 |
| 189.0 | 190.05 | 34.440 | D | -0.248 | C | 27.695 | 1450.5 |
| 190.0 | 191.07 | 34.445 | D | -0.246 | C | 27.699 | 1450.5 |
| 191.0 | 192.07 | 34.446 | D | -0.243 | C | 27.700 | 1450.6 |
| 192.0 | 193.09 | 34.448 | D | -0.239 | C | 27.701 | 1450.6 |
| 193.0 | 194.08 | 34.452 | D | -0.236 | C | 27.704 | 1450.6 |
| 194.0 | 195.09 | 34.453 | D | -0.234 | C | 27.705 | 1450.7 |
| 195.0 | 196.06 | 34.457 | D | -0.231 | C | 27.708 | 1450.7 |
| 196.0 | 197.07 | 34.458 | D | -0.225 | C | 27.709 | 1450.7 |
| 197.0 | 198.11 | 34.460 | D | -0.224 | C | 27.710 | 1450.8 |
| 198.0 | 199.12 | 34.460 | D | -0.221 | C | 27.710 | 1450.8 |
| 199.0 | 200.11 | 34.461 | D | -0.215 | C | 27.710 | 1450.8 |
| 200.0 | 201.16 | 34.461 | D | -0.212 | C | 27.711 | 1450.9 |
| 201.0 | 202.16 | 34.457 | D | -0.205 | C | 27.707 | 1450.9 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 202.0 | 203.17 | 34.447 D | -0.195 C | 27.698 | 1451.0 |
| 203.0 | 204.17 | 34.509 D | -0.184 C | 27.748 | 1451.1 |
| 204.0 | 205.14 | 34.512 D | -0.183 C | 27.750 | 1451.1 |
| 205.0 | 206.16 | 34.513 D | -0.180 C | 27.751 | 1451.2 |
| 206.0 | 207.09 | 34.513 D | -0.167 C | 27.750 | 1451.2 |
| 207.0 | 208.13 | 34.524 D | -0.149 C | 27.758 | 1451.4 |
| 208.0 | 209.10 | 34.531 D | -0.139 C | 27.764 | 1451.4 |
| 209.0 | 210.12 | 34.540 D | -0.131 C | 27.770 | 1451.5 |
| 210.0 | 210.97 | 34.547 D | -0.112 C | 27.775 | 1451.6 |


EXPERIMENT 1071
TEMPERATURE, C
-2.00 -1.50 -1.00 -0.50 0.00 0.50 1.00
SALINITY 0/00
11.00 15.00 19.00 23.00 27.00 31.00 35.00
SIGMAT
15.00 18.00 21.00 24.00 27.00 30.00 33.00
DEPTH M
1
10
100
1000

CRUISE D'IBERVILLE FIORD-75 EXPER NO. 1071

LAT N.80-34-50 LONG W.78-32-00 WATER DEPTH 232

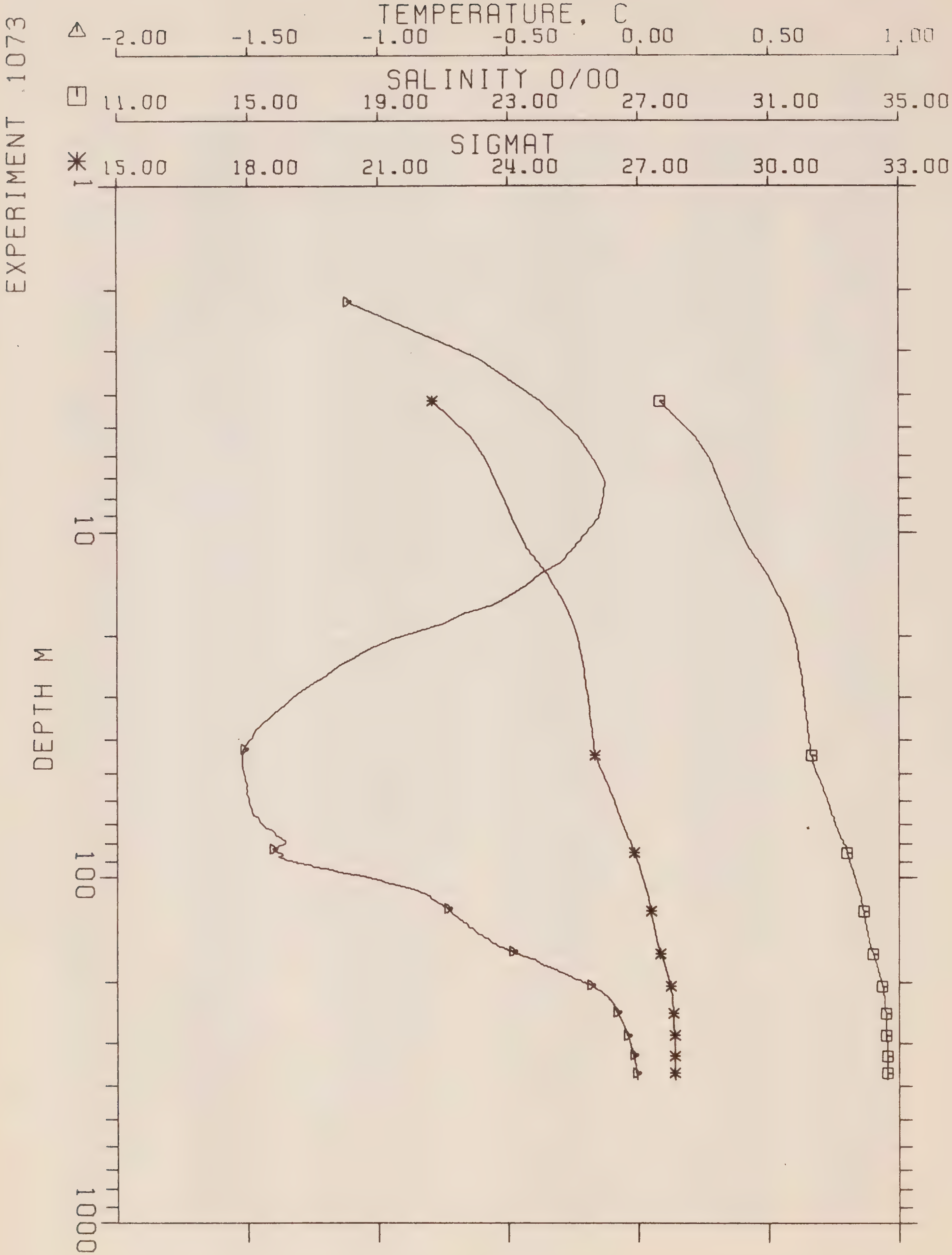
DEPTH INCR. DATE 080475 LOCAL TIME 1155

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 2.0 | 2.00 | | -1.081 D | | |
| 3.0 | 3.00 | | -0.645 D | | |
| 4.0 | 3.95 | 27.636 E | -0.365 D | 22.215 | 1437.5 |
| 5.0 | 5.00 | 28.673 E | -0.213 D | 23.046 | 1439.6 |
| 6.0 | 6.00 | | -0.147 D | | |
| 7.0 | 6.95 | 29.555 E | -0.106 D | 23.753 | 1441.4 |
| 8.0 | 8.05 | 29.798 E | -0.115 D | 23.949 | 1441.7 |
| 9.0 | 8.95 | 30.030 E | -0.158 D | 24.137 | 1441.8 |
| 10.0 | 10.00 | 30.287 E | -0.162 D | 24.344 | 1442.2 |
| 11.0 | 10.95 | 30.534 E | -0.219 D | 24.545 | 1442.3 |
| 12.0 | 12.00 | 30.820 E | -0.289 D | 24.778 | 1442.3 |
| 13.0 | 12.95 | 31.052 E | -0.376 D | 24.968 | 1442.3 |
| 14.0 | 14.00 | 31.228 E | -0.459 D | 25.113 | 1442.2 |
| 15.0 | 14.95 | 31.390 E | -0.508 D | 25.245 | 1442.2 |
| 16.0 | 16.00 | 31.535 E | -0.602 D | 25.365 | 1441.9 |
| 17.0 | 16.95 | 31.640 E | -0.758 D | 25.455 | 1441.4 |
| 18.0 | 18.05 | 31.726 E | -0.806 D | 25.526 | 1441.3 |
| 19.0 | 18.95 | 31.804 E | -0.952 D | 25.593 | 1440.7 |
| 20.0 | 20.05 | 31.851 E | -0.953 D | 25.631 | 1440.8 |
| 21.0 | 20.95 | 31.897 E | -1.057 D | 25.672 | 1440.4 |
| 22.0 | 22.00 | 31.926 E | -1.098 D | 25.696 | 1440.3 |
| 23.0 | 23.00 | 31.951 E | -1.101 D | 25.716 | 1440.3 |
| 24.0 | 24.00 | 31.979 E | -1.133 D | 25.739 | 1440.2 |
| 25.0 | 25.00 | 32.001 E | -1.168 D | 25.758 | 1440.1 |
| 26.0 | 25.95 | 32.027 E | -1.215 D | 25.781 | 1439.9 |
| 27.0 | 27.00 | 32.047 E | -1.245 D | 25.797 | 1439.8 |
| 28.0 | 28.00 | 32.070 E | -1.279 D | 25.817 | 1439.7 |
| 29.0 | 29.00 | 32.085 E | -1.298 D | 25.829 | 1439.7 |
| 30.0 | 30.05 | 32.101 E | -1.322 D | 25.843 | 1439.6 |
| 31.0 | 31.00 | 32.120 E | -1.343 D | 25.859 | 1439.5 |
| 32.0 | 32.05 | 32.138 E | -1.373 D | 25.875 | 1439.4 |
| 33.0 | 33.00 | 32.154 E | -1.391 D | 25.888 | 1439.4 |
| 34.0 | 34.00 | 32.172 E | -1.415 D | 25.903 | 1439.3 |
| 35.0 | 35.00 | 32.183 E | -1.428 D | 25.912 | 1439.3 |
| 36.0 | 36.00 | 32.202 E | -1.457 D | 25.928 | 1439.2 |
| 37.0 | 36.90 | 32.214 E | -1.468 D | 25.938 | 1439.2 |
| 38.0 | 38.00 | 32.226 E | -1.476 D | 25.948 | 1439.2 |
| 39.0 | 39.00 | 32.242 E | -1.487 D | 25.961 | 1439.2 |
| 40.0 | 39.95 | 32.260 E | -1.495 D | 25.976 | 1439.2 |
| 41.0 | 41.00 | 32.281 E | -1.506 D | 25.993 | 1439.2 |
| 42.0 | 42.00 | 32.302 E | -1.523 D | 26.010 | 1439.1 |
| 43.0 | 43.00 | 32.320 E | -1.524 D | 26.025 | 1439.2 |
| 44.0 | 43.95 | 32.344 E | -1.512 D | 26.044 | 1439.3 |
| 45.0 | 45.05 | 32.372 E | -1.519 D | 26.067 | 1439.3 |
| 46.0 | 45.95 | 32.400 E | -1.518 D | 26.090 | 1439.3 |
| 47.0 | 47.00 | 32.426 E | -1.519 D | 26.111 | 1439.4 |
| 48.0 | 48.00 | 32.461 E | -1.513 D | 26.139 | 1439.5 |
| 49.0 | 49.05 | 32.497 E | -1.511 D | 26.168 | 1439.6 |
| 50.0 | 50.00 | 32.534 E | -1.509 D | 26.198 | 1439.6 |
| 51.0 | 51.00 | 32.568 E | -1.505 D | 26.226 | 1439.7 |
| 52.0 | 51.95 | 32.592 E | -1.505 D | 26.245 | 1439.8 |
| 53.0 | 53.00 | 32.620 E | -1.505 D | 26.268 | 1439.8 |
| 54.0 | 54.00 | 32.646 E | -1.507 D | 26.289 | 1439.9 |
| 55.0 | 55.00 | 32.678 E | -1.499 D | 26.314 | 1440.0 |
| 56.0 | 56.00 | 32.711 E | -1.496 D | 26.341 | 1440.0 |
| 57.0 | 57.00 | 32.754 E | -1.522 D | 26.377 | 1440.0 |
| 58.0 | 58.00 | 32.780 E | -1.523 D | 26.398 | 1440.1 |
| 59.0 | 58.95 | 32.801 E | -1.504 D | 26.414 | 1440.2 |
| 60.0 | 60.05 | 32.840 E | -1.497 D | 26.446 | 1440.3 |
| 61.0 | 61.00 | 32.870 E | -1.503 D | 26.471 | 1440.3 |
| 62.0 | 62.05 | 32.899 E | -1.499 D | 26.494 | 1440.4 |
| 63.0 | 63.00 | 32.923 E | -1.481 D | 26.513 | 1440.5 |

| DEPTH | PRESS | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| 64.0 | 63.95 | 32.946 | E | -1.499 | D | 26.532 | 1440.5 |
| 65.0 | 65.00 | 32.967 | E | -1.482 | D | 26.548 | 1440.6 |
| 66.0 | 66.00 | 32.993 | E | -1.469 | D | 26.569 | 1440.7 |
| 67.0 | 67.05 | 33.015 | E | -1.464 | D | 26.587 | 1440.8 |
| 68.0 | 67.95 | 33.039 | E | -1.461 | D | 26.606 | 1440.9 |
| 69.0 | 69.00 | 33.066 | E | -1.459 | D | 26.628 | 1440.9 |
| 70.0 | 70.00 | 33.101 | E | -1.489 | D | 26.657 | 1440.9 |
| 71.0 | 71.05 | 33.115 | E | -1.431 | D | 26.667 | 1441.2 |
| 72.0 | 72.05 | 33.148 | E | -1.411 | D | 26.693 | 1441.3 |
| 73.0 | 73.00 | 33.176 | E | -1.405 | D | 26.715 | 1441.4 |
| 74.0 | 74.05 | 33.201 | E | -1.382 | D | 26.735 | 1441.6 |
| 75.0 | 75.05 | 33.234 | E | -1.400 | D | 26.762 | 1441.5 |
| 76.0 | 76.00 | 33.249 | E | -1.389 | D | 26.775 | 1441.6 |
| 77.0 | 77.10 | 33.281 | E | -1.416 | D | 26.801 | 1441.6 |
| 78.0 | 78.00 | 33.329 | E | -1.471 | D | 26.842 | 1441.4 |
| 79.0 | 79.05 | 33.324 | E | -1.446 | D | 26.837 | 1441.5 |
| 80.0 | 80.05 | 33.365 | E | -1.465 | D | 26.871 | 1441.5 |
| 81.0 | 81.00 | 33.390 | E | -1.530 | D | 26.892 | 1441.3 |
| 82.0 | 82.10 | 33.417 | E | -1.548 | D | 26.915 | 1441.2 |
| 83.0 | 83.00 | 33.424 | E | -1.554 | D | 26.920 | 1441.2 |
| 84.0 | 84.10 | 33.433 | E | -1.509 | D | 26.926 | 1441.5 |
| 85.0 | 85.05 | 33.456 | E | -1.526 | D | 26.945 | 1441.4 |
| 86.0 | 86.00 | 33.468 | E | -1.527 | D | 26.955 | 1441.5 |
| 87.0 | 87.05 | 33.477 | E | -1.485 | D | 26.962 | 1441.7 |
| 88.0 | 88.05 | 33.496 | E | -1.432 | D | 26.976 | 1442.0 |
| 89.0 | 89.00 | 33.514 | E | -1.351 | D | 26.988 | 1442.4 |
| 90.0 | 90.10 | 33.520 | E | -1.334 | D | 26.993 | 1442.5 |
| 91.0 | 91.10 | 33.541 | E | -1.204 | D | 27.005 | 1443.2 |
| 92.0 | 92.00 | 33.565 | E | -1.182 | D | 27.025 | 1443.3 |
| 93.0 | 93.00 | 33.578 | E | -1.143 | D | 27.034 | 1443.5 |
| 94.0 | 94.10 | 33.593 | E | -1.128 | D | 27.046 | 1443.6 |
| 95.0 | 95.05 | 33.615 | E | -1.096 | D | 27.062 | 1443.8 |
| 96.0 | 96.05 | 33.627 | E | -1.072 | D | 27.071 | 1444.0 |
| 97.0 | 97.10 | 33.644 | E | -1.053 | D | 27.084 | 1444.1 |
| 98.0 | 98.15 | 33.657 | E | -1.033 | D | 27.094 | 1444.2 |
| 99.0 | 99.10 | 33.667 | E | -1.008 | D | 27.101 | 1444.4 |
| 100.0 | 100.05 | 33.680 | D | -0.991 | C | 27.111 | 1444.5 |
| 101.0 | 101.10 | 33.691 | D | -0.972 | C | 27.119 | 1444.6 |
| 102.0 | 102.15 | 33.702 | D | -0.954 | C | 27.127 | 1444.7 |
| 103.0 | 103.10 | 33.714 | D | -0.927 | C | 27.136 | 1444.9 |
| 104.0 | 104.05 | 33.726 | D | -0.905 | C | 27.145 | 1445.0 |
| 105.0 | 105.05 | 33.742 | D | -0.887 | C | 27.158 | 1445.2 |
| 106.0 | 106.15 | 33.753 | D | -0.874 | C | 27.166 | 1445.3 |
| 107.0 | 107.15 | 33.761 | D | -0.862 | C | 27.172 | 1445.3 |
| 108.0 | 108.20 | 33.771 | D | -0.850 | C | 27.180 | 1445.4 |
| 109.0 | 109.10 | 33.783 | D | -0.836 | C | 27.189 | 1445.5 |
| 110.0 | 110.15 | 33.792 | D | -0.825 | C | 27.196 | 1445.6 |
| 111.0 | 111.15 | 33.801 | D | -0.817 | C | 27.202 | 1445.7 |
| 112.0 | 112.15 | 33.807 | D | -0.809 | C | 27.208 | 1445.7 |
| 113.0 | 113.10 | 33.816 | D | -0.802 | C | 27.215 | 1445.8 |
| 114.0 | 114.15 | 33.825 | D | -0.793 | C | 27.222 | 1445.9 |
| 115.0 | 115.10 | 33.833 | D | -0.784 | C | 27.228 | 1445.9 |
| 116.0 | 116.20 | 33.844 | D | -0.775 | C | 27.236 | 1446.0 |
| 117.0 | 117.15 | 33.852 | D | -0.770 | C | 27.242 | 1446.1 |
| 118.0 | 118.15 | 33.860 | D | -0.763 | C | 27.248 | 1446.1 |
| 119.0 | 119.10 | 33.863 | D | -0.759 | C | 27.251 | 1446.2 |
| 120.0 | 120.15 | 33.869 | D | -0.752 | C | 27.255 | 1446.2 |
| 121.0 | 121.15 | 33.878 | D | -0.748 | C | 27.262 | 1446.3 |
| 122.0 | 122.10 | 33.883 | D | -0.740 | C | 27.266 | 1446.3 |
| 123.0 | 123.15 | 33.894 | D | -0.732 | C | 27.275 | 1446.4 |
| 124.0 | 124.20 | 33.900 | D | -0.727 | C | 27.279 | 1446.4 |
| 125.0 | 125.20 | 33.905 | D | -0.722 | C | 27.283 | 1446.5 |
| 126.0 | 126.15 | 33.912 | D | -0.715 | C | 27.289 | 1446.5 |
| 127.0 | 127.20 | 33.919 | D | -0.712 | C | 27.294 | 1446.6 |
| 128.0 | 128.20 | 33.923 | D | -0.707 | C | 27.298 | 1446.6 |
| 129.0 | 129.20 | 33.930 | D | -0.700 | C | 27.303 | 1446.7 |
| 130.0 | 130.15 | 33.938 | D | -0.692 | C | 27.308 | 1446.8 |
| 131.0 | 131.15 | 33.947 | D | -0.687 | C | 27.315 | 1446.8 |
| 132.0 | 132.20 | 33.953 | D | -0.680 | C | 27.321 | 1446.9 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 133.0 | 133.20 | 33.962 D | -0.675 C | 27.327 | 1446.9 |
| 134.0 | 134.25 | 33.971 D | -0.669 C | 27.334 | 1447.0 |
| 135.0 | 135.25 | 33.976 D | -0.662 C | 27.338 | 1447.0 |
| 136.0 | 136.20 | 33.984 D | -0.656 C | 27.345 | 1447.1 |
| 137.0 | 137.25 | 33.993 D | -0.650 C | 27.351 | 1447.1 |
| 138.0 | 138.25 | 33.998 D | -0.645 C | 27.355 | 1447.2 |
| 139.0 | 139.25 | 34.007 D | -0.637 C | 27.363 | 1447.3 |
| 140.0 | 140.30 | 34.014 D | -0.632 C | 27.368 | 1447.3 |
| 141.0 | 141.25 | 34.021 D | -0.625 C | 27.373 | 1447.4 |
| 142.0 | 142.25 | 34.026 D | -0.620 C | 27.377 | 1447.4 |
| 143.0 | 143.25 | 34.034 D | -0.615 C | 27.383 | 1447.5 |
| 144.0 | 144.30 | 34.039 D | -0.611 C | 27.387 | 1447.5 |
| 145.0 | 145.25 | 34.046 D | -0.604 C | 27.392 | 1447.6 |
| 146.0 | 146.25 | 34.053 D | -0.598 C | 27.398 | 1447.6 |
| 147.0 | 147.30 | 34.059 D | -0.593 C | 27.403 | 1447.7 |
| 148.0 | 148.30 | 34.068 D | -0.587 C | 27.409 | 1447.7 |
| 149.0 | 149.45 | 34.073 D | -0.580 C | 27.414 | 1447.8 |
| 150.0 | 150.40 | 34.079 D | -0.574 C | 27.418 | 1447.8 |
| 151.0 | 151.25 | 34.088 D | -0.566 C | 27.425 | 1447.9 |
| 152.0 | 152.45 | 34.096 D | -0.560 C | 27.431 | 1448.0 |
| 153.0 | 153.35 | 34.101 D | -0.553 C | 27.435 | 1448.0 |
| 154.0 | 154.35 | 34.109 D | -0.547 C | 27.441 | 1448.1 |
| 155.0 | 155.45 | 34.116 D | -0.543 C | 27.447 | 1448.1 |
| 156.0 | 156.35 | 34.123 D | -0.535 C | 27.452 | 1448.2 |
| 157.0 | 157.40 | 34.132 D | -0.527 C | 27.459 | 1448.2 |
| 158.0 | 158.45 | 34.141 D | -0.520 C | 27.466 | 1448.3 |
| 159.0 | 159.50 | 34.149 D | -0.512 C | 27.472 | 1448.4 |
| 160.0 | 160.55 | 34.158 D | -0.503 C | 27.479 | 1448.4 |
| 161.0 | 161.45 | 34.170 D | -0.493 C | 27.488 | 1448.5 |
| 162.0 | 162.60 | 34.180 D | -0.484 C | 27.496 | 1448.6 |
| 163.0 | 163.55 | 34.188 D | -0.476 C | 27.502 | 1448.7 |
| 164.0 | 164.60 | 34.197 D | -0.468 C | 27.509 | 1448.7 |
| 165.0 | 165.65 | 34.207 D | -0.458 C | 27.516 | 1448.8 |
| 166.0 | 166.75 | 34.217 D | -0.450 C | 27.524 | 1448.9 |
| 167.0 | 167.75 | 34.226 D | -0.443 C | 27.531 | 1448.9 |
| 168.0 | 168.85 | 34.235 D | -0.433 C | 27.538 | 1449.0 |
| 169.0 | 169.70 | 34.248 D | -0.420 C | 27.548 | 1449.1 |
| 170.0 | 170.75 | 34.264 D | -0.407 C | 27.560 | 1449.2 |
| 171.0 | 171.75 | 34.276 D | -0.392 C | 27.570 | 1449.3 |
| 172.0 | 172.60 | 34.289 D | -0.383 C | 27.579 | 1449.4 |
| 173.0 | 173.65 | 34.298 D | -0.375 C | 27.586 | 1449.4 |
| 174.0 | 174.65 | 34.309 D | -0.366 C | 27.594 | 1449.5 |
| 175.0 | 175.60 | 34.316 D | -0.358 C | 27.600 | 1449.6 |
| 176.0 | 176.80 | 34.323 D | -0.349 C | 27.605 | 1449.6 |
| 177.0 | 177.75 | 34.334 D | -0.341 C | 27.614 | 1449.7 |
| 178.0 | 178.70 | 34.342 D | -0.332 C | 27.620 | 1449.8 |
| 179.0 | 179.85 | 34.352 D | -0.323 C | 27.627 | 1449.9 |
| 180.0 | 180.80 | 34.358 D | -0.313 C | 27.632 | 1449.9 |
| 181.0 | 181.75 | 34.370 D | -0.305 C | 27.641 | 1450.0 |
| 182.0 | 182.80 | 34.377 D | -0.297 C | 27.647 | 1450.1 |
| 183.0 | 183.75 | 34.383 D | -0.292 C | 27.651 | 1450.1 |
| 184.0 | 184.80 | 34.387 D | -0.287 C | 27.654 | 1450.2 |
| 185.0 | 185.80 | 34.391 D | -0.282 C | 27.657 | 1450.2 |
| 186.0 | 186.75 | 34.399 D | -0.277 C | 27.663 | 1450.2 |
| 187.0 | 187.85 | 34.405 D | -0.269 C | 27.668 | 1450.3 |
| 188.0 | 188.80 | 34.411 D | -0.261 C | 27.672 | 1450.4 |
| 189.0 | 189.75 | 34.420 D | -0.252 C | 27.679 | 1450.4 |
| 190.0 | 190.90 | 34.426 D | -0.245 C | 27.683 | 1450.5 |
| 191.0 | 191.85 | 34.432 D | -0.241 C | 27.688 | 1450.5 |
| 192.0 | 192.80 | 34.436 D | -0.236 C | 27.691 | 1450.6 |
| 193.0 | 193.85 | 34.442 D | -0.228 C | 27.696 | 1450.6 |
| 194.0 | 194.95 | 34.450 D | -0.218 C | 27.702 | 1450.7 |
| 195.0 | 195.95 | 34.458 D | -0.213 C | 27.708 | 1450.8 |
| 196.0 | 197.00 | 34.463 D | -0.208 C | 27.711 | 1450.8 |
| 197.0 | 198.10 | 34.466 D | -0.201 C | 27.713 | 1450.9 |
| 198.0 | 199.05 | 34.474 D | -0.198 C | 27.720 | 1450.9 |
| 199.0 | 200.00 | 34.477 D | -0.192 C | 27.722 | 1451.0 |
| 200.0 | 200.95 | 34.482 D | -0.187 C | 27.726 | 1451.0 |
| 201.0 | 202.05 | 34.487 D | -0.182 C | 27.730 | 1451.1 |

| DEPTH | PRESS | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| 202.0 | 203.10 | 34.492 | D | -0.175 | C | 27.733 | 1451.1 |
| 203.0 | 204.05 | 34.496 | D | -0.170 | C | 27.737 | 1451.2 |
| 204.0 | 205.05 | 34.503 | D | -0.166 | C | 27.742 | 1451.2 |
| 205.0 | 206.05 | 34.507 | D | -0.161 | C | 27.745 | 1451.2 |
| 206.0 | 207.10 | 34.509 | D | -0.156 | C | 27.747 | 1451.3 |
| 207.0 | 208.00 | 34.512 | D | -0.153 | C | 27.749 | 1451.3 |
| 208.0 | 209.15 | 34.517 | D | -0.150 | C | 27.752 | 1451.4 |
| 209.0 | 210.05 | 34.520 | D | -0.146 | C | 27.755 | 1451.4 |
| 210.0 | 211.15 | 34.523 | D | -0.142 | C | 27.757 | 1451.4 |
| 211.0 | 212.05 | 34.526 | D | -0.139 | C | 27.759 | 1451.5 |
| 212.0 | 213.10 | 34.528 | D | -0.136 | C | 27.761 | 1451.5 |
| 213.0 | 214.15 | 34.532 | D | -0.134 | C | 27.764 | 1451.5 |
| 214.0 | 215.15 | 34.535 | D | -0.129 | C | 27.766 | 1451.6 |
| 215.0 | 216.20 | 34.538 | D | -0.126 | C | 27.768 | 1451.6 |
| 216.0 | 217.25 | 34.541 | D | -0.124 | C | 27.770 | 1451.6 |
| 217.0 | 218.20 | 34.543 | D | -0.121 | C | 27.772 | 1451.7 |
| 218.0 | 219.25 | 34.543 | D | -0.119 | C | 27.772 | 1451.7 |
| 219.0 | 220.30 | 34.546 | D | -0.117 | C | 27.775 | 1451.7 |
| 220.0 | 221.20 | 34.548 | D | -0.114 | C | 27.776 | 1451.8 |
| 221.0 | 222.35 | 34.550 | D | -0.111 | C | 27.777 | 1451.8 |
| 222.0 | 223.30 | 34.553 | D | -0.109 | C | 27.779 | 1451.8 |
| 223.0 | 224.35 | 34.554 | D | -0.106 | C | 27.780 | 1451.9 |
| 224.0 | 225.40 | 34.555 | D | -0.105 | C | 27.781 | 1451.9 |
| 225.0 | 226.30 | 34.558 | D | -0.104 | C | 27.783 | 1451.9 |
| 226.0 | 227.45 | 34.560 | D | -0.102 | C | 27.785 | 1451.9 |
| 227.0 | 228.35 | 34.560 | D | -0.100 | C | 27.785 | 1452.0 |
| 228.0 | 229.45 | 34.564 | D | -0.100 | C | 27.788 | 1452.0 |
| 229.0 | 230.45 | 34.564 | D | -0.099 | C | 27.788 | 1452.0 |
| 230.0 | 231.40 | 34.564 | D | -0.097 | C | 27.788 | 1452.0 |
| 231.0 | 232.50 | 34.566 | D | -0.097 | C | 27.789 | 1452.1 |
| 232.0 | 233.45 | 34.567 | D | -0.095 | C | 27.790 | 1452.1 |
| 233.0 | 234.45 | 34.572 | D | -0.091 | C | 27.794 | 1452.1 |
| 234.0 | 235.45 | 34.573 | D | -0.089 | C | 27.794 | 1452.1 |
| 235.0 | 236.40 | 34.574 | D | -0.089 | C | 27.795 | 1452.2 |
| 236.0 | 237.40 | 34.574 | D | -0.087 | C | 27.796 | 1452.2 |
| 237.0 | 238.40 | 34.575 | D | -0.087 | C | 27.796 | 1452.2 |
| 238.0 | 239.40 | 34.575 | D | -0.085 | C | 27.796 | 1452.2 |
| 239.0 | 240.50 | 34.577 | D | -0.084 | C | 27.798 | 1452.3 |
| 240.0 | 241.35 | 34.577 | D | -0.082 | C | 27.797 | 1452.3 |
| 241.0 | 242.45 | 34.580 | D | -0.082 | C | 27.800 | 1452.3 |
| 242.0 | 243.40 | 34.583 | D | -0.078 | C | 27.802 | 1452.3 |
| 243.0 | 244.50 | 34.584 | D | -0.075 | C | 27.803 | 1452.4 |
| 244.0 | 245.55 | 34.588 | D | -0.074 | C | 27.806 | 1452.4 |
| 245.0 | 246.50 | 34.587 | D | -0.071 | C | 27.805 | 1452.4 |
| 246.0 | 247.50 | 34.590 | D | -0.070 | C | 27.807 | 1452.5 |
| 247.0 | 248.65 | 34.591 | D | -0.067 | C | 27.808 | 1452.5 |
| 248.0 | 249.65 | 34.592 | D | -0.067 | C | 27.809 | 1452.5 |
| 249.0 | 250.65 | 34.594 | D | -0.066 | C | 27.810 | 1452.5 |
| 250.0 | 251.65 | 34.594 | D | -0.066 | C | 27.811 | 1452.6 |
| 251.0 | 252.70 | 34.594 | D | -0.065 | C | 27.811 | 1452.6 |
| 252.0 | 253.65 | 34.596 | D | -0.064 | C | 27.812 | 1452.6 |
| 253.0 | 254.70 | 34.596 | D | -0.063 | C | 27.812 | 1452.6 |
| 254.0 | 255.70 | 34.596 | D | -0.062 | C | 27.812 | 1452.6 |
| 255.0 | 256.80 | 34.598 | D | -0.062 | C | 27.814 | 1452.7 |
| 256.0 | 257.65 | 34.599 | D | -0.060 | C | 27.814 | 1452.7 |
| 257.0 | 258.80 | 34.599 | D | -0.060 | C | 27.815 | 1452.7 |
| 258.0 | 259.70 | 34.601 | D | -0.060 | C | 27.816 | 1452.7 |
| 259.0 | 260.70 | 34.601 | D | -0.058 | C | 27.816 | 1452.7 |
| 260.0 | 261.75 | 34.602 | D | -0.058 | C | 27.817 | 1452.8 |
| 261.0 | 262.75 | 34.602 | D | -0.056 | C | 27.816 | 1452.8 |
| 262.0 | 263.80 | 34.603 | D | -0.055 | C | 27.817 | 1452.8 |
| 263.0 | 264.70 | 34.605 | D | -0.055 | C | 27.819 | 1452.8 |
| 264.0 | 265.95 | 34.605 | D | -0.052 | C | 27.819 | 1452.9 |
| 265.0 | 266.85 | 34.605 | D | -0.052 | C | 27.819 | 1452.9 |
| 266.0 | 267.65 | 34.606 | D | -0.052 | C | 27.819 | 1452.9 |
| 267.0 | 268.70 | 34.607 | D | -0.053 | C | 27.820 | 1452.9 |
| 268.0 | 269.75 | 34.606 | D | -0.052 | C | 27.820 | 1452.9 |
| 269.0 | 270.70 | 34.606 | D | -0.049 | C | 27.819 | 1453.0 |
| 270.0 | 271.65 | 34.607 | D | -0.048 | C | 27.820 | 1453.0 |


EXPERIMENT 1073
TEMPERATURE, C
-2.00 -1.50 -1.00 -0.50 0.00 0.50 1.00
SALINITY 0/00
11.00 15.00 19.00 23.00 27.00 31.00 35.00
SIGMAT
15.00 18.00 21.00 24.00 27.00 30.00 33.00
DEPTH M
1
10
100
1000

CRUISE D'IBERVILLE FIORD-75 EXPER NO. 1073

LAT N.80-34-50 LONG W.78-43-00 WATER DEPTH 420

DEPTH INCR. DATE 080475 LOCAL TIME 1440

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 2.0 | 2.15 | | -1.119 D | | |
| 3.0 | 3.15 | | -0.613 D | | |
| 4.0 | 4.20 | 27.698 E | -0.376 D | 22.266 | 1437.5 |
| 5.0 | 5.30 | 28.774 E | -0.230 D | 23.128 | 1439.7 |
| 6.0 | 6.20 | 29.239 E | -0.172 D | 23.501 | 1440.6 |
| 7.0 | 7.25 | 29.536 E | -0.124 D | 23.738 | 1441.3 |
| 8.0 | 8.20 | 29.773 E | -0.133 D | 23.929 | 1441.6 |
| 9.0 | 9.15 | 29.966 E | -0.149 D | 24.085 | 1441.8 |
| 10.0 | 10.20 | 30.182 E | -0.205 D | 24.261 | 1441.8 |
| 11.0 | 11.25 | 30.430 E | -0.251 D | 24.463 | 1442.0 |
| 12.0 | 12.25 | 30.705 E | -0.297 D | 24.686 | 1442.2 |
| 13.0 | 13.25 | 30.978 E | -0.373 D | 24.909 | 1442.2 |
| 14.0 | 14.25 | 31.161 E | -0.430 D | 25.058 | 1442.2 |
| 15.0 | 15.25 | 31.335 E | -0.495 D | 25.200 | 1442.2 |
| 16.0 | 16.30 | 31.463 E | -0.553 D | 25.305 | 1442.1 |
| 17.0 | 17.30 | 31.601 E | -0.673 D | 25.421 | 1441.7 |
| 18.0 | 18.30 | 31.695 E | -0.741 D | 25.499 | 1441.6 |
| 19.0 | 19.25 | 31.763 E | -0.838 D | 25.557 | 1441.2 |
| 20.0 | 20.30 | 31.826 E | -0.938 D | 25.611 | 1440.9 |
| 21.0 | 21.35 | 31.873 E | -1.012 D | 25.651 | 1440.6 |
| 22.0 | 22.35 | 31.911 E | -1.067 D | 25.683 | 1440.4 |
| 23.0 | 23.25 | 31.930 E | -1.088 D | 25.699 | 1440.3 |
| 24.0 | 24.30 | 31.971 E | -1.144 D | 25.733 | 1440.2 |
| 25.0 | 25.35 | 31.999 E | -1.175 D | 25.757 | 1440.1 |
| 26.0 | 26.35 | 32.023 E | -1.211 D | 25.777 | 1439.9 |
| 27.0 | 27.35 | 32.048 E | -1.247 D | 25.798 | 1439.8 |
| 28.0 | 28.30 | 32.067 E | -1.275 D | 25.815 | 1439.7 |
| 29.0 | 29.35 | 32.085 E | -1.305 D | 25.830 | 1439.6 |
| 30.0 | 30.40 | 32.105 E | -1.330 D | 25.847 | 1439.6 |
| 31.0 | 31.40 | 32.119 E | -1.350 D | 25.858 | 1439.5 |
| 32.0 | 32.40 | 32.139 E | -1.374 D | 25.875 | 1439.4 |
| 33.0 | 33.35 | 32.155 E | -1.397 D | 25.889 | 1439.4 |
| 34.0 | 34.40 | 32.170 E | -1.416 D | 25.901 | 1439.3 |
| 35.0 | 35.40 | 32.183 E | -1.434 D | 25.912 | 1439.3 |
| 36.0 | 36.40 | 32.199 E | -1.450 D | 25.925 | 1439.2 |
| 37.0 | 37.40 | 32.214 E | -1.464 D | 25.938 | 1439.2 |
| 38.0 | 38.50 | 32.226 E | -1.476 D | 25.948 | 1439.2 |
| 39.0 | 39.45 | 32.237 E | -1.487 D | 25.957 | 1439.2 |
| 40.0 | 40.40 | 32.248 E | -1.495 D | 25.967 | 1439.1 |
| 41.0 | 41.40 | 32.266 E | -1.504 D | 25.981 | 1439.1 |
| 42.0 | 42.45 | 32.282 E | -1.515 D | 25.994 | 1439.1 |
| 43.0 | 43.45 | 32.298 E | -1.521 D | 26.007 | 1439.1 |
| 44.0 | 44.45 | 32.320 E | -1.520 D | 26.025 | 1439.2 |
| 45.0 | 45.45 | 32.343 E | -1.520 D | 26.044 | 1439.2 |
| 46.0 | 46.40 | 32.371 E | -1.519 D | 26.066 | 1439.3 |
| 47.0 | 47.50 | 32.405 E | -1.518 D | 26.094 | 1439.4 |
| 48.0 | 48.50 | 32.442 E | -1.518 D | 26.123 | 1439.4 |
| 49.0 | 49.50 | 32.474 E | -1.515 D | 26.150 | 1439.5 |
| 50.0 | 50.50 | 32.507 E | -1.514 D | 26.177 | 1439.6 |
| 51.0 | 51.50 | 32.546 E | -1.511 D | 26.208 | 1439.7 |
| 52.0 | 52.45 | 32.585 E | -1.511 D | 26.240 | 1439.7 |
| 53.0 | 53.50 | 32.624 E | -1.505 D | 26.271 | 1439.8 |
| 54.0 | 54.45 | 32.661 E | -1.502 D | 26.301 | 1439.9 |
| 55.0 | 55.50 | 32.693 E | -1.503 D | 26.327 | 1440.0 |
| 56.0 | 56.55 | 32.726 E | -1.499 D | 26.353 | 1440.1 |
| 57.0 | 57.55 | 32.763 E | -1.504 D | 26.384 | 1440.1 |
| 58.0 | 58.60 | 32.790 E | -1.502 D | 26.406 | 1440.2 |
| 59.0 | 59.55 | 32.813 E | -1.497 D | 26.424 | 1440.2 |
| 60.0 | 60.60 | 32.843 E | -1.493 D | 26.448 | 1440.3 |
| 61.0 | 61.55 | 32.868 E | -1.493 D | 26.469 | 1440.4 |
| 62.0 | 62.55 | 32.893 E | -1.488 D | 26.489 | 1440.4 |
| 63.0 | 63.55 | 32.915 E | -1.486 D | 26.506 | 1440.5 |

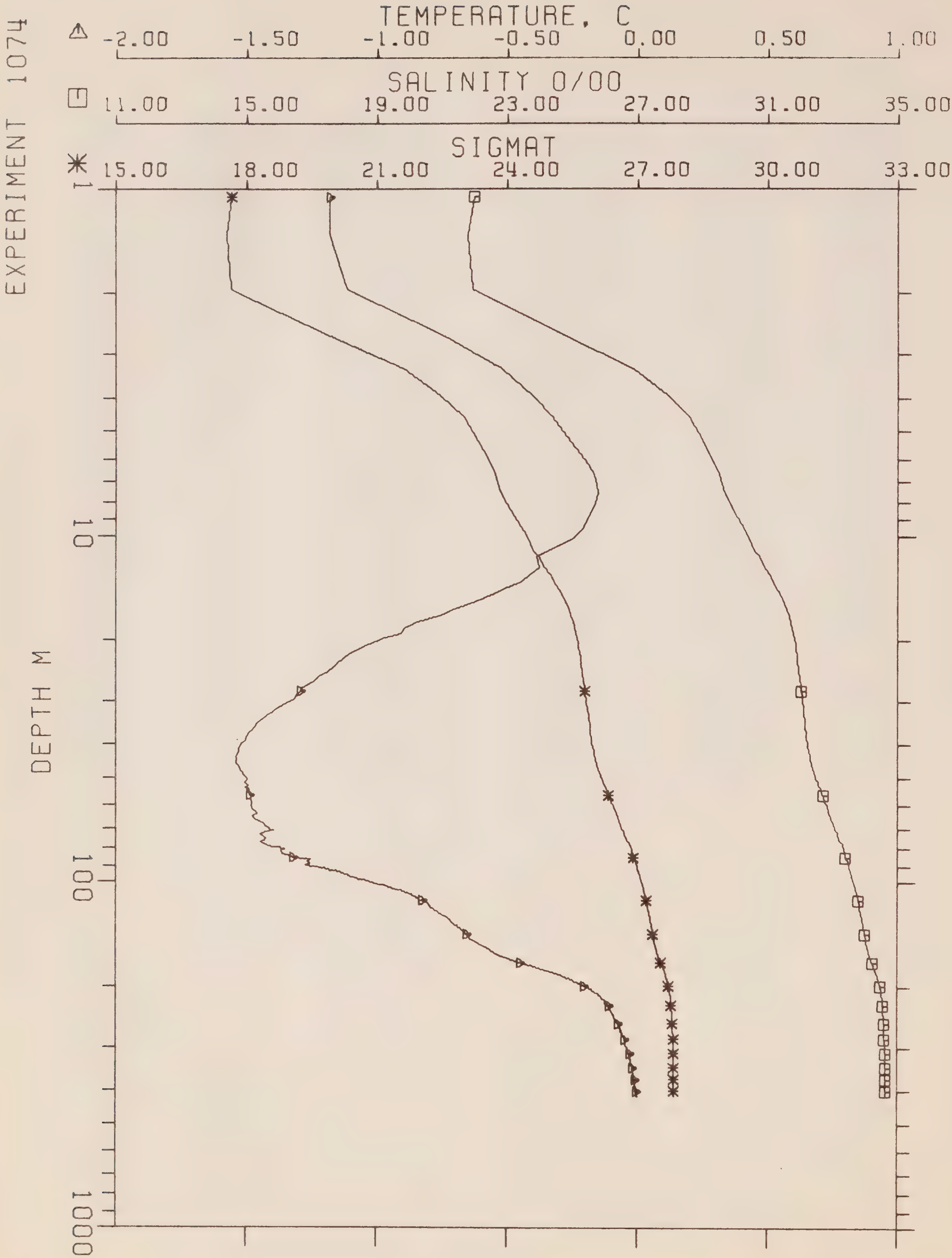
| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 64.0 | 64.60 | 32.938 E | -1.483 D | 26.525 | 1440.6 |
| 65.0 | 65.65 | 32.966 E | -1.479 D | 26.548 | 1440.6 |
| 66.0 | 66.65 | 32.992 E | -1.467 D | 26.568 | 1440.8 |
| 67.0 | 67.65 | 33.015 E | -1.458 D | 26.587 | 1440.8 |
| 68.0 | 68.60 | 33.038 E | -1.453 D | 26.605 | 1440.9 |
| 69.0 | 69.60 | 33.056 E | -1.448 D | 26.619 | 1441.0 |
| 70.0 | 70.60 | 33.084 E | -1.438 D | 26.642 | 1441.1 |
| 71.0 | 71.65 | 33.110 E | -1.428 D | 26.663 | 1441.2 |
| 72.0 | 72.65 | 33.134 E | -1.411 D | 26.682 | 1441.3 |
| 73.0 | 73.65 | 33.160 E | -1.401 D | 26.703 | 1441.4 |
| 74.0 | 74.70 | 33.183 E | -1.394 D | 26.721 | 1441.5 |
| 75.0 | 75.70 | 33.202 E | -1.383 D | 26.736 | 1441.6 |
| 76.0 | 76.65 | 33.236 E | -1.369 D | 26.763 | 1441.7 |
| 77.0 | 77.70 | 33.265 E | -1.360 D | 26.786 | 1441.8 |
| 78.0 | 78.65 | 33.290 E | -1.357 D | 26.807 | 1441.9 |
| 79.0 | 79.70 | 33.313 E | -1.355 D | 26.825 | 1441.9 |
| 80.0 | 80.70 | 33.341 E | -1.373 D | 26.848 | 1441.9 |
| 81.0 | 81.70 | 33.359 E | -1.386 D | 26.863 | 1441.9 |
| 82.0 | 82.75 | 33.381 E | -1.403 D | 26.882 | 1441.9 |
| 83.0 | 83.80 | 33.398 E | -1.397 D | 26.895 | 1441.9 |
| 84.0 | 84.75 | 33.414 E | -1.375 D | 26.908 | 1442.1 |
| 85.0 | 85.75 | 33.428 E | -1.365 D | 26.919 | 1442.2 |
| 86.0 | 86.75 | 33.454 E | -1.387 D | 26.941 | 1442.1 |
| 87.0 | 87.70 | 33.464 E | -1.364 D | 26.948 | 1442.2 |
| 88.0 | 88.75 | 33.489 E | -1.347 D | 26.968 | 1442.4 |
| 89.0 | 89.75 | 33.499 E | -1.312 D | 26.975 | 1442.6 |
| 90.0 | 90.75 | 33.518 E | -1.314 D | 26.990 | 1442.6 |
| 91.0 | 91.80 | 33.530 E | -1.262 D | 26.998 | 1442.9 |
| 92.0 | 92.85 | 33.552 E | -1.250 D | 27.015 | 1443.0 |
| 93.0 | 93.85 | 33.567 E | -1.200 D | 27.026 | 1443.3 |
| 94.0 | 94.80 | 33.583 E | -1.178 D | 27.039 | 1443.4 |
| 95.0 | 95.80 | 33.596 E | -1.165 D | 27.048 | 1443.5 |
| 96.0 | 96.80 | 33.609 E | -1.123 D | 27.058 | 1443.7 |
| 97.0 | 97.85 | 33.624 E | -1.085 D | 27.069 | 1444.0 |
| 98.0 | 98.90 | 33.643 E | -1.058 D | 27.083 | 1444.1 |
| 99.0 | 99.90 | 33.658 E | -1.035 D | 27.095 | 1444.3 |
| 100.0 | 100.95 | 33.670 D | -1.013 C | 27.104 | 1444.4 |
| 101.0 | 101.85 | 33.685 D | -0.995 C | 27.115 | 1444.5 |
| 102.0 | 102.85 | 33.696 D | -0.971 C | 27.124 | 1444.7 |
| 103.0 | 103.90 | 33.712 D | -0.948 C | 27.135 | 1444.8 |
| 104.0 | 104.90 | 33.726 D | -0.927 C | 27.146 | 1444.9 |
| 105.0 | 105.90 | 33.738 D | -0.907 C | 27.155 | 1445.1 |
| 106.0 | 106.90 | 33.751 D | -0.887 C | 27.165 | 1445.2 |
| 107.0 | 107.90 | 33.764 D | -0.870 C | 27.175 | 1445.3 |
| 108.0 | 108.90 | 33.774 D | -0.856 C | 27.182 | 1445.4 |
| 109.0 | 109.90 | 33.787 D | -0.841 C | 27.193 | 1445.5 |
| 110.0 | 110.95 | 33.800 D | -0.828 C | 27.202 | 1445.6 |
| 111.0 | 112.00 | 33.811 D | -0.815 C | 27.211 | 1445.7 |
| 112.0 | 112.95 | 33.823 D | -0.806 C | 27.220 | 1445.8 |
| 113.0 | 114.00 | 33.830 D | -0.798 C | 27.225 | 1445.8 |
| 114.0 | 115.00 | 33.840 D | -0.790 C | 27.233 | 1445.9 |
| 115.0 | 116.00 | 33.846 D | -0.781 C | 27.238 | 1446.0 |
| 116.0 | 117.05 | 33.856 D | -0.774 C | 27.246 | 1446.0 |
| 117.0 | 118.05 | 33.863 D | -0.767 C | 27.251 | 1446.1 |
| 118.0 | 119.05 | 33.870 D | -0.760 C | 27.257 | 1446.2 |
| 119.0 | 120.05 | 33.878 D | -0.753 C | 27.262 | 1446.2 |
| 120.0 | 121.05 | 33.885 D | -0.746 C | 27.268 | 1446.3 |
| 121.0 | 122.05 | 33.893 D | -0.741 C | 27.274 | 1446.3 |
| 122.0 | 123.00 | 33.898 D | -0.737 C | 27.278 | 1446.4 |
| 123.0 | 124.05 | 33.903 D | -0.732 C | 27.282 | 1446.4 |
| 124.0 | 125.05 | 33.909 D | -0.726 C | 27.287 | 1446.5 |
| 125.0 | 126.05 | 33.916 D | -0.720 C | 27.292 | 1446.5 |
| 126.0 | 127.10 | 33.924 D | -0.715 C | 27.298 | 1446.6 |
| 127.0 | 128.10 | 33.929 D | -0.709 C | 27.302 | 1446.6 |
| 128.0 | 129.15 | 33.937 D | -0.702 C | 27.309 | 1446.7 |
| 129.0 | 130.15 | 33.944 D | -0.696 C | 27.314 | 1446.7 |
| 130.0 | 131.15 | 33.952 D | -0.692 C | 27.320 | 1446.8 |
| 131.0 | 132.15 | 33.958 D | -0.686 C | 27.325 | 1446.8 |
| 132.0 | 133.10 | 33.965 D | -0.680 C | 27.330 | 1446.9 |

| DEPTH | PRESS | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| 133.0 | 134.10 | 33.972 | D | -0.673 | C | 27.336 | 1447.0 |
| 134.0 | 135.15 | 33.980 | D | -0.667 | C | 27.341 | 1447.0 |
| 135.0 | 136.20 | 33.985 | D | -0.662 | C | 27.346 | 1447.1 |
| 136.0 | 137.25 | 33.991 | D | -0.657 | C | 27.351 | 1447.1 |
| 137.0 | 138.20 | 33.998 | D | -0.653 | C | 27.356 | 1447.2 |
| 138.0 | 139.15 | 34.003 | D | -0.648 | C | 27.360 | 1447.2 |
| 139.0 | 140.15 | 34.011 | D | -0.642 | C | 27.366 | 1447.3 |
| 140.0 | 141.20 | 34.017 | D | -0.635 | C | 27.371 | 1447.3 |
| 141.0 | 142.20 | 34.025 | D | -0.629 | C | 27.377 | 1447.4 |
| 142.0 | 143.30 | 34.032 | D | -0.624 | C | 27.382 | 1447.4 |
| 143.0 | 144.25 | 34.038 | D | -0.618 | C | 27.387 | 1447.5 |
| 144.0 | 145.20 | 34.042 | D | -0.612 | C | 27.390 | 1447.5 |
| 145.0 | 146.25 | 34.052 | D | -0.606 | C | 27.398 | 1447.6 |
| 146.0 | 147.25 | 34.058 | D | -0.600 | C | 27.402 | 1447.6 |
| 147.0 | 148.30 | 34.066 | D | -0.595 | C | 27.408 | 1447.7 |
| 148.0 | 149.30 | 34.071 | D | -0.588 | C | 27.412 | 1447.7 |
| 149.0 | 150.25 | 34.077 | D | -0.582 | C | 27.417 | 1447.8 |
| 150.0 | 151.30 | 34.084 | D | -0.577 | C | 27.422 | 1447.8 |
| 151.0 | 152.30 | 34.090 | D | -0.571 | C | 27.427 | 1447.9 |
| 152.0 | 153.35 | 34.098 | D | -0.565 | C | 27.433 | 1447.9 |
| 153.0 | 154.40 | 34.105 | D | -0.557 | C | 27.438 | 1448.0 |
| 154.0 | 155.30 | 34.113 | D | -0.551 | C | 27.445 | 1448.1 |
| 155.0 | 156.35 | 34.121 | D | -0.545 | C | 27.451 | 1448.1 |
| 156.0 | 157.40 | 34.128 | D | -0.538 | C | 27.456 | 1448.2 |
| 157.0 | 158.40 | 34.137 | D | -0.530 | C | 27.463 | 1448.2 |
| 158.0 | 159.40 | 34.146 | D | -0.521 | C | 27.470 | 1448.3 |
| 159.0 | 160.40 | 34.158 | D | -0.511 | C | 27.479 | 1448.4 |
| 160.0 | 161.40 | 34.168 | D | -0.503 | C | 27.486 | 1448.5 |
| 161.0 | 162.40 | 34.175 | D | -0.494 | C | 27.492 | 1448.5 |
| 162.0 | 163.40 | 34.184 | D | -0.487 | C | 27.499 | 1448.6 |
| 163.0 | 164.45 | 34.194 | D | -0.479 | C | 27.507 | 1448.7 |
| 164.0 | 165.50 | 34.205 | D | -0.469 | C | 27.515 | 1448.7 |
| 165.0 | 166.40 | 34.214 | D | -0.459 | C | 27.522 | 1448.8 |
| 166.0 | 167.40 | 34.225 | D | -0.451 | C | 27.531 | 1448.9 |
| 167.0 | 168.50 | 34.234 | D | -0.441 | C | 27.537 | 1449.0 |
| 168.0 | 169.50 | 34.246 | D | -0.431 | C | 27.547 | 1449.0 |
| 169.0 | 170.50 | 34.256 | D | -0.421 | C | 27.554 | 1449.1 |
| 170.0 | 171.45 | 34.266 | D | -0.409 | C | 27.562 | 1449.2 |
| 171.0 | 172.50 | 34.276 | D | -0.402 | C | 27.570 | 1449.3 |
| 172.0 | 173.50 | 34.282 | D | -0.396 | C | 27.574 | 1449.3 |
| 173.0 | 174.50 | 34.289 | D | -0.390 | C | 27.579 | 1449.4 |
| 174.0 | 175.50 | 34.295 | D | -0.383 | C | 27.584 | 1449.4 |
| 175.0 | 176.55 | 34.305 | D | -0.378 | C | 27.592 | 1449.5 |
| 176.0 | 177.55 | 34.309 | D | -0.371 | C | 27.595 | 1449.5 |
| 177.0 | 178.60 | 34.317 | D | -0.363 | C | 27.601 | 1449.6 |
| 178.0 | 179.60 | 34.327 | D | -0.354 | C | 27.609 | 1449.7 |
| 179.0 | 180.60 | 34.335 | D | -0.347 | C | 27.615 | 1449.7 |
| 180.0 | 181.60 | 34.342 | D | -0.339 | C | 27.620 | 1449.8 |
| 181.0 | 182.60 | 34.347 | D | -0.331 | C | 27.624 | 1449.9 |
| 182.0 | 183.60 | 34.356 | D | -0.323 | C | 27.631 | 1449.9 |
| 183.0 | 184.60 | 34.364 | D | -0.316 | C | 27.637 | 1450.0 |
| 184.0 | 185.60 | 34.371 | D | -0.308 | C | 27.642 | 1450.0 |
| 185.0 | 186.65 | 34.379 | D | -0.301 | C | 27.648 | 1450.1 |
| 186.0 | 187.70 | 34.387 | D | -0.295 | C | 27.654 | 1450.2 |
| 187.0 | 188.65 | 34.390 | D | -0.289 | C | 27.657 | 1450.2 |
| 188.0 | 189.70 | 34.396 | D | -0.284 | C | 27.661 | 1450.3 |
| 189.0 | 190.65 | 34.402 | D | -0.277 | C | 27.666 | 1450.3 |
| 190.0 | 191.80 | 34.408 | D | -0.270 | C | 27.671 | 1450.4 |
| 191.0 | 192.80 | 34.416 | D | -0.262 | C | 27.676 | 1450.4 |
| 192.0 | 193.80 | 34.423 | D | -0.255 | C | 27.682 | 1450.5 |
| 193.0 | 194.80 | 34.428 | D | -0.250 | C | 27.685 | 1450.5 |
| 194.0 | 195.85 | 34.435 | D | -0.243 | C | 27.691 | 1450.6 |
| 195.0 | 196.80 | 34.442 | D | -0.235 | C | 27.696 | 1450.7 |
| 196.0 | 197.80 | 34.448 | D | -0.226 | C | 27.700 | 1450.7 |
| 197.0 | 199.15 | 34.455 | D | -0.221 | C | 27.706 | 1450.8 |
| 198.0 | 200.10 | 34.463 | D | -0.213 | C | 27.712 | 1450.8 |
| 199.0 | 201.20 | 34.469 | D | -0.206 | C | 27.716 | 1450.9 |
| 200.0 | 202.05 | 34.476 | D | -0.199 | C | 27.722 | 1451.0 |
| 201.0 | 203.05 | 34.482 | D | -0.192 | C | 27.726 | 1451.0 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 202.0 | 204.10 | 34.485 D | -0.186 C | 27.729 | 1451.1 |
| 203.0 | 205.00 | 34.493 D | -0.181 C | 27.735 | 1451.1 |
| 204.0 | 206.05 | 34.497 D | -0.176 C | 27.738 | 1451.2 |
| 205.0 | 206.95 | 34.501 D | -0.172 C | 27.741 | 1451.2 |
| 206.0 | 207.95 | 34.503 D | -0.168 C | 27.742 | 1451.2 |
| 207.0 | 209.05 | 34.507 D | -0.164 C | 27.745 | 1451.3 |
| 208.0 | 210.00 | 34.512 D | -0.159 C | 27.749 | 1451.3 |
| 209.0 | 211.00 | 34.515 D | -0.153 C | 27.751 | 1451.4 |
| 210.0 | 212.10 | 34.521 D | -0.149 C | 27.756 | 1451.4 |
| 211.0 | 213.15 | 34.525 D | -0.146 C | 27.758 | 1451.5 |
| 212.0 | 214.05 | 34.528 D | -0.142 C | 27.761 | 1451.5 |
| 213.0 | 215.15 | 34.531 D | -0.138 C | 27.763 | 1451.5 |
| 214.0 | 216.20 | 34.534 D | -0.134 C | 27.766 | 1451.6 |
| 215.0 | 217.15 | 34.537 D | -0.131 C | 27.767 | 1451.6 |
| 216.0 | 218.15 | 34.540 D | -0.128 C | 27.770 | 1451.6 |
| 217.0 | 219.15 | 34.543 D | -0.125 C | 27.772 | 1451.7 |
| 218.0 | 220.25 | 34.544 D | -0.121 C | 27.773 | 1451.7 |
| 219.0 | 221.20 | 34.547 D | -0.119 C | 27.776 | 1451.7 |
| 220.0 | 222.25 | 34.550 D | -0.117 C | 27.777 | 1451.8 |
| 221.0 | 223.20 | 34.551 D | -0.115 C | 27.779 | 1451.8 |
| 222.0 | 224.25 | 34.554 D | -0.113 C | 27.780 | 1451.8 |
| 223.0 | 225.30 | 34.555 D | -0.111 C | 27.781 | 1451.9 |
| 224.0 | 226.35 | 34.558 D | -0.109 C | 27.784 | 1451.9 |
| 225.0 | 227.35 | 34.559 D | -0.106 C | 27.784 | 1451.9 |
| 226.0 | 228.30 | 34.561 D | -0.105 C | 27.786 | 1451.9 |
| 227.0 | 229.30 | 34.562 D | -0.103 C | 27.787 | 1452.0 |
| 228.0 | 230.30 | 34.563 D | -0.102 C | 27.788 | 1452.0 |
| 229.0 | 231.25 | 34.565 D | -0.101 C | 27.789 | 1452.0 |
| 230.0 | 232.30 | 34.567 D | -0.099 C | 27.790 | 1452.0 |
| 231.0 | 233.35 | 34.567 D | -0.097 C | 27.790 | 1452.1 |
| 232.0 | 234.35 | 34.569 D | -0.096 C | 27.792 | 1452.1 |
| 233.0 | 235.40 | 34.571 D | -0.095 C | 27.793 | 1452.1 |
| 234.0 | 236.40 | 34.572 D | -0.093 C | 27.794 | 1452.1 |
| 235.0 | 237.40 | 34.574 D | -0.092 C | 27.795 | 1452.2 |
| 236.0 | 238.40 | 34.576 D | -0.091 C | 27.797 | 1452.2 |
| 237.0 | 239.40 | 34.576 D | -0.090 C | 27.798 | 1452.2 |
| 238.0 | 240.45 | 34.577 D | -0.088 C | 27.798 | 1452.2 |
| 239.0 | 241.45 | 34.579 D | -0.087 C | 27.799 | 1452.3 |
| 240.0 | 242.45 | 34.580 D | -0.086 C | 27.801 | 1452.3 |
| 241.0 | 243.50 | 34.581 D | -0.085 C | 27.801 | 1452.3 |
| 242.0 | 244.50 | 34.581 D | -0.083 C | 27.801 | 1452.3 |
| 243.0 | 245.50 | 34.583 D | -0.082 C | 27.803 | 1452.4 |
| 244.0 | 246.45 | 34.585 D | -0.081 C | 27.804 | 1452.4 |
| 245.0 | 247.50 | 34.584 D | -0.079 C | 27.803 | 1452.4 |
| 246.0 | 248.50 | 34.586 D | -0.079 C | 27.805 | 1452.4 |
| 247.0 | 249.65 | 34.588 D | -0.078 C | 27.807 | 1452.5 |
| 248.0 | 250.65 | 34.589 D | -0.077 C | 27.807 | 1452.5 |
| 249.0 | 251.60 | 34.590 D | -0.075 C | 27.807 | 1452.5 |
| 250.0 | 252.55 | 34.592 D | -0.074 C | 27.809 | 1452.5 |
| 251.0 | 253.55 | 34.592 D | -0.072 C | 27.809 | 1452.6 |
| 252.0 | 254.60 | 34.594 D | -0.071 C | 27.811 | 1452.6 |
| 253.0 | 255.60 | 34.596 D | -0.071 C | 27.812 | 1452.6 |
| 254.0 | 256.70 | 34.595 D | -0.069 C | 27.812 | 1452.6 |
| 255.0 | 257.75 | 34.599 D | -0.068 C | 27.814 | 1452.6 |
| 256.0 | 258.70 | 34.598 D | -0.066 C | 27.814 | 1452.7 |
| 257.0 | 259.75 | 34.600 D | -0.065 C | 27.815 | 1452.7 |
| 258.0 | 260.80 | 34.601 D | -0.064 C | 27.816 | 1452.7 |
| 259.0 | 261.75 | 34.602 D | -0.063 C | 27.817 | 1452.7 |
| 260.0 | 262.70 | 34.602 D | -0.062 C | 27.817 | 1452.8 |
| 261.0 | 263.75 | 34.604 D | -0.062 C | 27.818 | 1452.8 |
| 262.0 | 264.65 | 34.604 D | -0.060 C | 27.819 | 1452.8 |
| 263.0 | 265.65 | 34.605 D | -0.059 C | 27.819 | 1452.8 |
| 264.0 | 266.65 | 34.607 D | -0.059 C | 27.820 | 1452.8 |
| 265.0 | 267.75 | 34.607 D | -0.058 C | 27.820 | 1452.9 |
| 266.0 | 268.75 | 34.606 D | -0.056 C | 27.820 | 1452.9 |
| 267.0 | 269.75 | 34.608 D | -0.056 C | 27.821 | 1452.9 |
| 268.0 | 270.80 | 34.609 D | -0.056 C | 27.822 | 1452.9 |
| 269.0 | 271.80 | 34.609 D | -0.055 C | 27.822 | 1453.0 |
| 270.0 | 272.85 | 34.609 D | -0.053 C | 27.822 | 1453.0 |

| DEPTH | PRESS | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| 271.0 | 273.90 | 34.611 | D | -0.053 | C | 27.824 | 1453.0 |
| 272.0 | 274.90 | 34.610 | D | -0.051 | C | 27.823 | 1453.0 |
| 273.0 | 276.00 | 34.610 | D | -0.050 | C | 27.823 | 1453.0 |
| 274.0 | 276.95 | 34.612 | D | -0.049 | C | 27.825 | 1453.1 |
| 275.0 | 277.85 | 34.613 | D | -0.048 | C | 27.825 | 1453.1 |
| 276.0 | 278.85 | 34.614 | D | -0.047 | C | 27.825 | 1453.1 |
| 277.0 | 279.95 | 34.614 | D | -0.047 | C | 27.825 | 1453.1 |
| 278.0 | 280.90 | 34.614 | D | -0.047 | C | 27.826 | 1453.1 |
| 279.0 | 281.95 | 34.614 | D | -0.046 | C | 27.826 | 1453.2 |
| 280.0 | 282.95 | 34.616 | D | -0.045 | C | 27.827 | 1453.2 |
| 281.0 | 283.90 | 34.617 | D | -0.044 | C | 27.828 | 1453.2 |
| 282.0 | 284.95 | 34.618 | D | -0.044 | C | 27.828 | 1453.2 |
| 283.0 | 285.95 | 34.617 | D | -0.041 | C | 27.828 | 1453.3 |
| 284.0 | 286.95 | 34.617 | D | -0.041 | C | 27.828 | 1453.3 |
| 285.0 | 287.90 | 34.619 | D | -0.042 | C | 27.830 | 1453.3 |
| 286.0 | 289.00 | 34.618 | D | -0.041 | C | 27.829 | 1453.3 |
| 287.0 | 290.05 | 34.618 | D | -0.040 | C | 27.829 | 1453.3 |
| 288.0 | 291.05 | 34.618 | D | -0.039 | C | 27.829 | 1453.4 |
| 289.0 | 292.10 | 34.620 | D | -0.039 | C | 27.830 | 1453.4 |
| 290.0 | 293.10 | 34.620 | D | -0.037 | C | 27.830 | 1453.4 |
| 291.0 | 294.15 | 34.619 | D | -0.036 | C | 27.829 | 1453.4 |
| 292.0 | 295.10 | 34.620 | D | -0.036 | C | 27.830 | 1453.4 |
| 293.0 | 296.00 | 34.621 | D | -0.036 | C | 27.831 | 1453.5 |
| 294.0 | 297.00 | 34.621 | D | -0.035 | C | 27.831 | 1453.5 |
| 295.0 | 298.15 | 34.622 | D | -0.035 | C | 27.831 | 1453.5 |
| 296.0 | 299.05 | 34.622 | D | -0.034 | C | 27.831 | 1453.5 |
| 297.0 | 300.10 | 34.621 | D | -0.033 | C | 27.831 | 1453.5 |
| 298.0 | 301.15 | 34.622 | D | -0.033 | C | 27.832 | 1453.6 |
| 299.0 | 302.10 | 34.622 | D | -0.032 | C | 27.832 | 1453.6 |
| 300.0 | 303.25 | 34.624 | D | -0.032 | C | 27.833 | 1453.6 |
| 301.0 | 304.25 | 34.624 | D | -0.032 | C | 27.833 | 1453.6 |
| 302.0 | 305.30 | 34.623 | D | -0.030 | C | 27.832 | 1453.6 |
| 303.0 | 306.30 | 34.623 | D | -0.029 | C | 27.832 | 1453.7 |
| 304.0 | 307.25 | 34.624 | D | -0.029 | C | 27.833 | 1453.7 |
| 305.0 | 308.30 | 34.625 | D | -0.029 | C | 27.834 | 1453.7 |
| 306.0 | 309.30 | 34.624 | D | -0.028 | C | 27.833 | 1453.7 |
| 307.0 | 310.30 | 34.625 | D | -0.028 | C | 27.834 | 1453.7 |
| 308.0 | 311.35 | 34.627 | D | -0.028 | C | 27.835 | 1453.7 |
| 309.0 | 312.25 | 34.625 | D | -0.027 | C | 27.834 | 1453.8 |
| 310.0 | 313.25 | 34.626 | D | -0.027 | C | 27.834 | 1453.8 |
| 311.0 | 314.40 | 34.626 | D | -0.026 | C | 27.834 | 1453.8 |
| 312.0 | 315.35 | 34.627 | D | -0.026 | C | 27.835 | 1453.8 |
| 313.0 | 316.60 | 34.627 | D | -0.025 | C | 27.835 | 1453.8 |
| 314.0 | 317.50 | 34.626 | D | -0.024 | C | 27.834 | 1453.9 |
| 315.0 | 318.45 | 34.626 | D | -0.023 | C | 27.834 | 1453.9 |
| 316.0 | 319.40 | 34.627 | D | -0.023 | C | 27.835 | 1453.9 |
| 317.0 | 320.35 | 34.628 | D | -0.024 | C | 27.836 | 1453.9 |
| 318.0 | 321.45 | 34.629 | D | -0.023 | C | 27.836 | 1453.9 |
| 319.0 | 322.60 | 34.628 | D | -0.022 | C | 27.836 | 1454.0 |
| 320.0 | 323.60 | 34.629 | D | -0.022 | C | 27.836 | 1454.0 |
| 321.0 | 324.45 | 34.626 | D | -0.020 | C | 27.834 | 1454.0 |
| 322.0 | 325.55 | 34.629 | D | -0.021 | C | 27.836 | 1454.0 |
| 323.0 | 326.50 | 34.627 | D | -0.019 | C | 27.835 | 1454.0 |
| 324.0 | 327.60 | 34.629 | D | -0.020 | C | 27.836 | 1454.1 |
| 325.0 | 328.60 | 34.628 | D | -0.019 | C | 27.835 | 1454.1 |
| 326.0 | 329.65 | 34.629 | D | -0.019 | C | 27.836 | 1454.1 |
| 327.0 | 330.70 | 34.629 | D | -0.018 | C | 27.836 | 1454.1 |
| 328.0 | 331.70 | 34.629 | D | -0.018 | C | 27.837 | 1454.1 |
| 329.0 | 332.70 | 34.629 | D | -0.017 | C | 27.836 | 1454.2 |
| 330.0 | 333.65 | 34.629 | D | -0.017 | C | 27.836 | 1454.2 |
| 331.0 | 334.75 | 34.630 | D | -0.017 | C | 27.837 | 1454.2 |
| 332.0 | 335.70 | 34.630 | D | -0.017 | C | 27.837 | 1454.2 |
| 333.0 | 336.75 | 34.631 | D | -0.017 | C | 27.838 | 1454.2 |
| 334.0 | 337.75 | 34.629 | D | -0.015 | C | 27.836 | 1454.2 |
| 335.0 | 338.70 | 34.630 | D | -0.015 | C | 27.837 | 1454.3 |
| 336.0 | 339.80 | 34.630 | D | -0.015 | C | 27.837 | 1454.3 |
| 337.0 | 340.85 | 34.630 | D | -0.015 | C | 27.837 | 1454.3 |
| 338.0 | 341.80 | 34.630 | D | -0.014 | C | 27.837 | 1454.3 |
| 339.0 | 342.75 | 34.630 | D | -0.013 | C | 27.837 | 1454.3 |

| DEPTH | PRESS | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| 340.0 | 343.80 | 34.631 | D | -0.013 | C | 27.838 | 1454.4 |
| 341.0 | 344.80 | 34.631 | D | -0.013 | C | 27.838 | 1454.4 |
| 342.0 | 345.75 | 34.631 | D | -0.012 | C | 27.837 | 1454.4 |
| 343.0 | 346.75 | 34.631 | D | -0.012 | C | 27.838 | 1454.4 |
| 344.0 | 347.85 | 34.631 | D | -0.012 | C | 27.838 | 1454.4 |
| 345.0 | 348.80 | 34.630 | D | -0.011 | C | 27.837 | 1454.4 |
| 346.0 | 349.80 | 34.631 | D | -0.011 | C | 27.838 | 1454.5 |
| 347.0 | 350.80 | 34.632 | D | -0.011 | C | 27.838 | 1454.5 |
| 348.0 | 351.85 | 34.631 | D | -0.010 | C | 27.838 | 1454.5 |
| 349.0 | 352.80 | 34.632 | D | -0.010 | C | 27.838 | 1454.5 |
| 350.0 | 353.80 | 34.633 | D | -0.010 | C | 27.839 | 1454.5 |
| 351.0 | 354.90 | 34.632 | D | -0.010 | C | 27.838 | 1454.6 |
| 352.0 | 355.90 | 34.632 | D | -0.009 | C | 27.838 | 1454.6 |
| 353.0 | 356.85 | 34.632 | D | -0.009 | C | 27.839 | 1454.6 |
| 354.0 | 357.90 | 34.634 | D | -0.010 | C | 27.840 | 1454.6 |
| 355.0 | 358.95 | 34.632 | D | -0.008 | C | 27.838 | 1454.6 |
| 356.0 | 359.90 | 34.632 | D | -0.008 | C | 27.838 | 1454.6 |
| 357.0 | 360.95 | 34.633 | D | -0.009 | C | 27.839 | 1454.7 |
| 358.0 | 362.00 | 34.633 | D | -0.010 | C | 27.839 | 1454.7 |
| 359.0 | 362.95 | 34.632 | D | -0.009 | C | 27.838 | 1454.7 |
| 360.0 | 363.95 | 34.634 | D | -0.010 | C | 27.840 | 1454.7 |
| 361.0 | 365.05 | 34.633 | D | -0.009 | C | 27.839 | 1454.7 |
| 362.0 | 366.05 | 34.633 | D | -0.009 | C | 27.839 | 1454.7 |
| 363.0 | 367.00 | 34.632 | D | -0.008 | C | 27.839 | 1454.8 |
| 364.0 | 368.05 | 34.633 | D | -0.007 | C | 27.839 | 1454.8 |
| 365.0 | 369.10 | 34.633 | D | -0.007 | C | 27.839 | 1454.8 |
| 366.0 | 370.05 | 34.634 | D | -0.007 | C | 27.840 | 1454.8 |
| 367.0 | 371.10 | 34.634 | D | -0.006 | C | 27.839 | 1454.8 |
| 368.0 | 372.10 | 34.633 | D | -0.006 | C | 27.839 | 1454.9 |
| 369.0 | 373.25 | 34.634 | D | -0.006 | C | 27.839 | 1454.9 |
| 370.0 | 374.15 | 34.633 | D | -0.005 | C | 27.839 | 1454.9 |
| 371.0 | 375.05 | 34.635 | D | -0.006 | C | 27.840 | 1454.9 |
| 372.0 | 376.05 | 34.634 | D | -0.005 | C | 27.840 | 1454.9 |
| 373.0 | 377.15 | 34.633 | D | -0.004 | C | 27.839 | 1454.9 |
| 374.0 | 378.20 | 34.634 | D | -0.004 | C | 27.839 | 1455.0 |
| 375.0 | 379.40 | 34.634 | D | -0.004 | C | 27.839 | 1455.0 |
| 376.0 | 380.45 | 34.635 | D | -0.005 | C | 27.840 | 1455.0 |
| 377.0 | 381.35 | 34.634 | D | -0.004 | C | 27.840 | 1455.0 |
| 378.0 | 382.25 | 34.635 | D | -0.004 | C | 27.840 | 1455.0 |
| 379.0 | 383.30 | 34.635 | D | -0.004 | C | 27.840 | 1455.1 |
| 380.0 | 384.30 | 34.635 | D | -0.004 | C | 27.841 | 1455.1 |


EXPERIMENT 1074
TEMPERATURE, C
-2.00 -1.50 -1.00 -0.50 0.00 0.50 1.00
SALINITY 0/00
11.00 15.00 19.00 23.00 27.00 31.00 35.00
SIGMAT
15.00 18.00 21.00 24.00 27.00 30.00 33.00
DEPTH M
1
10
100
1000

| | | |
|---|---|---|
| CRUISE | D'IBERVILLE FIORD-75 | EXPER NO. 1074 |
| LAT N.80-35-40 | LONG W.79-28-00 | WATER DEPTH 534 |
| DEPTH INCR. | DATE 120475 | LOCAL TIME 1108 |

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 1.05 | 22.001 E | -1.180 D | 17.681 | 1425.8 |
| | 1.35 | 21.820 E | -1.180 D | 17.536 | 1425.5 |
| | 1.95 | 21.948 E | -1.115 D | 17.639 | 1426.1 |
| | 2.65 | 24.790 E | -0.742 D | 19.929 | 1431.7 |
| | 3.30 | 26.877 E | -0.522 D | 21.608 | 1435.7 |
| | 3.95 | 27.942 E | -0.399 D | 22.463 | 1437.7 |
| | 4.55 | 28.606 E | -0.323 D | 22.995 | 1439.0 |
| | 5.35 | 29.042 E | -0.256 D | 23.345 | 1439.9 |
| | 6.00 | 29.329 E | -0.201 D | 23.574 | 1440.6 |
| | 6.65 | 29.521 E | -0.164 D | 23.728 | 1441.0 |
| | 7.45 | 29.687 E | -0.149 D | 23.861 | 1441.4 |
| | 8.05 | 29.874 E | -0.159 D | 24.011 | 1441.6 |
| | 8.80 | 30.096 E | -0.185 D | 24.191 | 1441.8 |
| | 9.45 | 30.281 E | -0.205 D | 24.341 | 1441.9 |
| | 10.10 | 30.441 E | -0.247 D | 24.472 | 1442.0 |
| | 11.05 | 30.612 E | -0.342 D | 24.612 | 1441.8 |
| | 11.45 | 30.744 E | -0.384 D | 24.720 | 1441.8 |
| | 12.35 | 30.912 E | -0.376 D | 24.856 | 1442.1 |
| | 12.90 | 31.074 E | -0.411 D | 24.987 | 1442.1 |
| | 13.60 | 31.204 E | -0.444 D | 25.093 | 1442.2 |
| | 14.25 | 31.331 E | -0.522 D | 25.198 | 1442.0 |
| | 14.95 | 31.433 E | -0.571 D | 25.282 | 1441.9 |
| | 15.60 | 31.523 E | -0.631 D | 25.357 | 1441.8 |
| | 16.30 | 31.607 E | -0.698 D | 25.426 | 1441.6 |
| | 17.00 | 31.677 E | -0.757 D | 25.485 | 1441.4 |
| | 17.75 | 31.736 E | -0.840 D | 25.535 | 1441.1 |
| | 18.40 | 31.763 E | -0.885 D | 25.558 | 1441.0 |
| | 19.10 | 31.798 E | -0.905 D | 25.587 | 1440.9 |
| | 19.75 | 31.834 E | -0.963 D | 25.618 | 1440.7 |
| | 20.45 | 31.864 E | -1.025 D | 25.644 | 1440.5 |
| | 21.15 | 31.887 E | -1.062 D | 25.663 | 1440.4 |
| | 21.85 | 31.908 E | -1.100 D | 25.681 | 1440.2 |
| | 22.55 | 31.926 E | -1.127 D | 25.696 | 1440.1 |
| | 23.20 | 31.938 E | -1.143 D | 25.707 | 1440.1 |
| | 23.85 | 31.953 E | -1.162 D | 25.720 | 1440.0 |
| | 24.55 | 31.974 E | -1.185 D | 25.737 | 1440.0 |
| | 25.30 | 31.991 E | -1.215 D | 25.752 | 1439.9 |
| | 25.95 | 32.001 E | -1.229 D | 25.760 | 1439.8 |
| | 26.65 | 32.024 E | -1.251 D | 25.779 | 1439.8 |
| | 27.40 | 32.041 E | -1.278 D | 25.793 | 1439.7 |
| | 27.95 | 32.051 E | -1.289 D | 25.802 | 1439.6 |
| | 28.70 | 32.064 E | -1.303 D | 25.813 | 1439.6 |
| | 29.45 | 32.077 E | -1.317 D | 25.824 | 1439.6 |
| | 30.10 | 32.089 E | -1.336 D | 25.834 | 1439.5 |
| | 30.70 | 32.101 E | -1.361 D | 25.844 | 1439.4 |
| | 31.40 | 32.111 E | -1.380 D | 25.852 | 1439.3 |
| | 32.15 | 32.122 E | -1.394 D | 25.862 | 1439.3 |
| | 32.85 | 32.139 E | -1.414 D | 25.876 | 1439.3 |
| | 33.60 | 32.151 E | -1.430 D | 25.886 | 1439.2 |
| | 34.20 | 32.164 E | -1.446 D | 25.897 | 1439.2 |
| | 34.90 | 32.174 E | -1.457 D | 25.905 | 1439.1 |
| | 35.55 | 32.178 E | -1.466 D | 25.909 | 1439.1 |
| | 36.35 | 32.189 E | -1.475 D | 25.918 | 1439.1 |
| | 37.00 | 32.202 E | -1.486 D | 25.929 | 1439.1 |
| | 37.70 | 32.208 E | -1.492 D | 25.934 | 1439.1 |
| | 38.20 | 32.215 E | -1.497 D | 25.939 | 1439.1 |
| | 39.10 | 32.230 E | -1.504 D | 25.952 | 1439.1 |
| | 39.75 | 32.244 E | -1.514 D | 25.963 | 1439.0 |
| | 40.55 | 32.256 E | -1.519 D | 25.973 | 1439.0 |
| | 41.15 | 32.270 E | -1.525 D | 25.984 | 1439.0 |
| | 41.85 | 32.283 E | -1.527 D | 25.995 | 1439.1 |
| | 42.60 | 32.302 E | -1.530 D | 26.011 | 1439.1 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 43.20 | 32.317 E | -1.537 D | 26.023 | 1439.1 |
| | 44.00 | 32.329 E | -1.535 D | 26.033 | 1439.1 |
| | 44.70 | 32.343 E | -1.537 D | 26.044 | 1439.2 |
| | 45.30 | 32.360 E | -1.534 D | 26.058 | 1439.2 |
| | 46.10 | 32.381 E | -1.524 D | 26.075 | 1439.3 |
| | 46.80 | 32.404 E | -1.527 D | 26.094 | 1439.3 |
| | 47.40 | 32.422 E | -1.520 D | 26.107 | 1439.4 |
| | 48.10 | 32.448 E | -1.508 D | 26.129 | 1439.5 |
| | 48.80 | 32.474 E | -1.509 D | 26.149 | 1439.5 |
| | 49.55 | 32.495 E | -1.500 D | 26.166 | 1439.6 |
| | 50.25 | 32.519 E | -1.496 D | 26.186 | 1439.7 |
| | 50.95 | 32.544 E | -1.496 D | 26.206 | 1439.7 |
| | 51.60 | 32.568 E | -1.502 D | 26.226 | 1439.7 |
| | 52.45 | 32.591 E | -1.491 D | 26.244 | 1439.8 |
| | 53.00 | 32.620 E | -1.499 D | 26.268 | 1439.9 |
| | 53.70 | 32.644 E | -1.490 D | 26.287 | 1439.9 |
| | 54.40 | 32.674 E | -1.483 D | 26.311 | 1440.0 |
| | 55.15 | 32.698 E | -1.489 D | 26.331 | 1440.0 |
| | 55.90 | 32.716 E | -1.483 D | 26.345 | 1440.1 |
| | 56.60 | 32.737 E | -1.477 D | 26.362 | 1440.2 |
| | 57.30 | 32.755 E | -1.481 D | 26.376 | 1440.2 |
| | 58.00 | 32.773 E | -1.479 D | 26.391 | 1440.2 |
| | 58.70 | 32.801 E | -1.473 D | 26.414 | 1440.3 |
| | 59.40 | 32.824 E | -1.477 D | 26.433 | 1440.4 |
| | 59.95 | 32.844 E | -1.482 D | 26.449 | 1440.4 |
| | 60.80 | 32.863 E | -1.474 D | 26.464 | 1440.4 |
| | 61.50 | 32.884 E | -1.471 D | 26.481 | 1440.5 |
| | 62.15 | 32.899 E | -1.467 D | 26.493 | 1440.6 |
| | 62.95 | 32.920 E | -1.453 D | 26.509 | 1440.7 |
| | 63.55 | 32.939 E | -1.463 D | 26.525 | 1440.6 |
| | 64.35 | 32.961 E | -1.476 D | 26.543 | 1440.6 |
| | 65.05 | 32.974 E | -1.464 D | 26.553 | 1440.7 |
| | 65.65 | 32.990 E | -1.456 D | 26.566 | 1440.8 |
| | 66.55 | 33.011 E | -1.452 D | 26.583 | 1440.9 |
| | 67.25 | 33.023 E | -1.436 D | 26.592 | 1441.0 |
| | 67.95 | 33.046 E | -1.427 D | 26.611 | 1441.0 |
| | 68.55 | 33.063 E | -1.424 D | 26.625 | 1441.1 |
| | 69.40 | 33.080 E | -1.409 D | 26.638 | 1441.2 |
| | 69.90 | 33.098 E | -1.409 D | 26.652 | 1441.2 |
| | 70.75 | 33.112 E | -1.389 D | 26.663 | 1441.4 |
| | 71.45 | 33.144 E | -1.425 D | 26.690 | 1441.2 |
| | 72.15 | 33.152 E | -1.445 D | 26.698 | 1441.2 |
| | 72.90 | 33.166 E | -1.436 D | 26.708 | 1441.2 |
| | 73.55 | 33.180 E | -1.431 D | 26.720 | 1441.3 |
| | 74.40 | 33.200 E | -1.421 D | 26.735 | 1441.4 |
| | 75.00 | 33.217 E | -1.423 D | 26.749 | 1441.4 |
| | 75.75 | 33.244 E | -1.432 D | 26.771 | 1441.4 |
| | 76.10 | 33.274 E | -1.445 D | 26.796 | 1441.4 |
| | 77.20 | 33.302 E | -1.432 D | 26.818 | 1441.5 |
| | 77.85 | 33.316 E | -1.424 D | 26.830 | 1441.6 |
| | 78.65 | 33.342 E | -1.397 D | 26.850 | 1441.8 |
| | 79.30 | 33.340 E | -1.364 D | 26.848 | 1441.9 |
| | 80.05 | 33.367 E | -1.352 D | 26.869 | 1442.0 |
| | 80.70 | 33.375 E | -1.363 D | 26.876 | 1442.0 |
| | 81.35 | 33.388 E | -1.365 D | 26.886 | 1442.0 |
| | 82.20 | 33.394 E | -1.361 D | 26.891 | 1442.1 |
| | 82.90 | 33.395 E | -1.341 D | 26.892 | 1442.2 |
| | 83.60 | 33.413 E | -1.325 D | 26.905 | 1442.3 |
| | 84.30 | 33.419 E | -1.318 D | 26.910 | 1442.3 |
| | 85.00 | 33.435 E | -1.270 D | 26.921 | 1442.6 |
| | 85.70 | 33.452 E | -1.256 D | 26.935 | 1442.7 |
| | 86.40 | 33.471 E | -1.253 D | 26.950 | 1442.8 |
| | 87.15 | 33.484 E | -1.263 D | 26.961 | 1442.7 |
| | 87.70 | 33.490 E | -1.255 D | 26.966 | 1442.8 |
| | 88.45 | 33.511 E | -1.260 D | 26.983 | 1442.8 |
| | 89.25 | 33.516 E | -1.273 D | 26.988 | 1442.8 |
| | 89.80 | 33.517 E | -1.238 D | 26.987 | 1443.0 |
| | 90.65 | 33.532 E | -1.207 D | 26.998 | 1443.1 |
| | 91.35 | 33.541 E | -1.189 D | 27.005 | 1443.2 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 92.00 | 33.551 E | -1.174 D | 27.013 | 1443.3 |
| | 92.65 | 33.561 E | -1.161 D | 27.021 | 1443.4 |
| | 93.45 | 33.576 E | -1.143 D | 27.032 | 1443.5 |
| | 94.10 | 33.585 F | -1.129 D | 27.039 | 1443.6 |
| | 94.85 | 33.595 E | -1.111 D | 27.047 | 1443.7 |
| | 95.45 | 33.609 E | -1.109 D | 27.057 | 1443.8 |
| | 96.25 | 33.617 E | -1.090 D | 27.063 | 1443.9 |
| | 97.00 | 33.629 F | -1.073 D | 27.073 | 1444.0 |
| | 97.60 | 33.638 E | -1.065 D | 27.079 | 1444.1 |
| | 98.35 | 33.645 E | -1.050 D | 27.085 | 1444.2 |
| | 99.05 | 33.656 E | -1.034 D | 27.093 | 1444.3 |
| | 99.75 | 33.663 F | -1.021 D | 27.099 | 1444.3 |
| | 100.40 | 33.674 D | -1.003 C | 27.106 | 1444.4 |
| | 101.20 | 33.684 D | -0.988 C | 27.114 | 1444.5 |
| | 101.80 | 33.691 D | -0.975 C | 27.120 | 1444.6 |
| | 102.55 | 33.701 D | -0.959 C | 27.127 | 1444.7 |
| | 103.20 | 33.712 D | -0.950 C | 27.136 | 1444.8 |
| | 104.00 | 33.716 D | -0.934 C | 27.138 | 1444.9 |
| | 104.70 | 33.728 D | -0.921 C | 27.148 | 1445.0 |
| | 105.35 | 33.735 D | -0.909 C | 27.153 | 1445.1 |
| | 106.05 | 33.740 D | -0.897 C | 27.157 | 1445.1 |
| | 106.70 | 33.751 D | -0.887 C | 27.165 | 1445.2 |
| | 107.55 | 33.761 D | -0.872 C | 27.172 | 1445.3 |
| | 108.15 | 33.770 D | -0.867 C | 27.179 | 1445.3 |
| | 108.85 | 33.775 D | -0.863 C | 27.183 | 1445.4 |
| | 109.70 | 33.783 D | -0.851 C | 27.189 | 1445.5 |
| | 110.35 | 33.790 D | -0.845 C | 27.195 | 1445.5 |
| | 111.00 | 33.795 D | -0.839 C | 27.199 | 1445.6 |
| | 111.70 | 33.802 D | -0.833 C | 27.204 | 1445.6 |
| | 112.40 | 33.808 D | -0.827 C | 27.209 | 1445.7 |
| | 113.15 | 33.815 D | -0.819 C | 27.214 | 1445.7 |
| | 113.85 | 33.823 D | -0.812 C | 27.220 | 1445.8 |
| | 114.55 | 33.829 D | -0.805 C | 27.225 | 1445.8 |
| | 115.25 | 33.835 D | -0.800 C | 27.229 | 1445.9 |
| | 116.00 | 33.841 D | -0.798 C | 27.234 | 1445.9 |
| | 116.85 | 33.843 D | -0.793 C | 27.236 | 1445.9 |
| | 117.45 | 33.846 D | -0.793 C | 27.238 | 1445.9 |
| | 118.10 | 33.849 D | -0.790 C | 27.241 | 1446.0 |
| | 118.85 | 33.855 D | -0.784 C | 27.245 | 1446.0 |
| | 119.55 | 33.860 D | -0.778 C | 27.249 | 1446.1 |
| | 120.25 | 33.865 D | -0.773 C | 27.253 | 1446.1 |
| | 120.95 | 33.871 D | -0.768 C | 27.258 | 1446.2 |
| | 121.65 | 33.878 D | -0.763 C | 27.263 | 1446.2 |
| | 122.60 | 33.885 D | -0.754 C | 27.268 | 1446.3 |
| | 123.10 | 33.889 D | -0.754 C | 27.272 | 1446.3 |
| | 123.80 | 33.893 D | -0.748 C | 27.275 | 1446.3 |
| | 124.50 | 33.900 D | -0.744 C | 27.280 | 1446.4 |
| | 125.25 | 33.908 D | -0.737 C | 27.286 | 1446.4 |
| | 125.95 | 33.914 D | -0.732 C | 27.291 | 1446.5 |
| | 126.65 | 33.918 D | -0.727 C | 27.294 | 1446.5 |
| | 127.50 | 33.923 D | -0.722 C | 27.298 | 1446.5 |
| | 128.10 | 33.926 D | -0.720 C | 27.300 | 1446.6 |
| | 128.85 | 33.931 D | -0.717 C | 27.304 | 1446.6 |
| | 129.45 | 33.936 D | -0.714 C | 27.308 | 1446.6 |
| | 130.20 | 33.940 D | -0.709 C | 27.311 | 1446.7 |
| | 130.95 | 33.947 D | -0.706 C | 27.316 | 1446.7 |
| | 131.65 | 33.950 D | -0.703 C | 27.319 | 1446.7 |
| | 132.30 | 33.954 D | -0.699 C | 27.322 | 1446.8 |
| | 133.10 | 33.960 D | -0.692 C | 27.327 | 1446.8 |
| | 133.80 | 33.967 D | -0.683 C | 27.332 | 1446.9 |
| | 134.50 | 33.975 D | -0.684 C | 27.338 | 1446.9 |
| | 135.20 | 33.978 D | -0.678 C | 27.341 | 1447.0 |
| | 136.05 | 33.982 D | -0.673 C | 27.344 | 1447.0 |
| | 136.65 | 33.989 D | -0.673 C | 27.349 | 1447.0 |
| | 137.35 | 33.991 D | -0.669 C | 27.351 | 1447.1 |
| | 138.10 | 33.996 D | -0.666 C | 27.355 | 1447.1 |
| | 138.75 | 33.999 D | -0.665 C | 27.357 | 1447.1 |
| | 139.60 | 34.005 D | -0.660 C | 27.361 | 1447.2 |
| | 140.30 | 34.006 D | -0.653 C | 27.363 | 1447.2 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 140.95 | 34.010 D | -0.655 C | 27.365 | 1447.2 |
| | 141.70 | 34.012 D | -0.651 C | 27.367 | 1447.2 |
| | 142.40 | 34.017 D | -0.648 C | 27.371 | 1447.3 |
| | 143.15 | 34.021 D | -0.647 C | 27.374 | 1447.3 |
| | 143.75 | 34.023 D | -0.646 C | 27.375 | 1447.3 |
| | 144.55 | 34.026 D | -0.644 C | 27.378 | 1447.3 |
| | 145.30 | 34.028 D | -0.639 C | 27.380 | 1447.4 |
| | 146.00 | 34.032 D | -0.636 C | 27.382 | 1447.4 |
| | 146.80 | 34.039 D | -0.630 C | 27.388 | 1447.5 |
| | 147.55 | 34.042 D | -0.624 C | 27.390 | 1447.5 |
| | 148.35 | 34.048 D | -0.618 C | 27.395 | 1447.5 |
| | 148.95 | 34.053 D | -0.616 C | 27.398 | 1447.6 |
| | 149.75 | 34.060 D | -0.611 C | 27.404 | 1447.6 |
| | 150.45 | 34.064 D | -0.605 C | 27.407 | 1447.7 |
| | 151.10 | 34.070 D | -0.600 C | 27.411 | 1447.7 |
| | 151.85 | 34.076 D | -0.595 C | 27.417 | 1447.8 |
| | 152.65 | 34.082 D | -0.589 C | 27.421 | 1447.8 |
| | 153.25 | 34.085 D | -0.585 C | 27.423 | 1447.8 |
| | 154.10 | 34.094 D | -0.578 C | 27.430 | 1447.9 |
| | 154.65 | 34.098 D | -0.577 C | 27.433 | 1447.9 |
| | 155.40 | 34.102 D | -0.572 C | 27.437 | 1448.0 |
| | 156.15 | 34.108 D | -0.567 C | 27.441 | 1448.0 |
| | 156.80 | 34.111 D | -0.564 C | 27.443 | 1448.0 |
| | 157.45 | 34.116 D | -0.560 C | 27.447 | 1448.1 |
| | 158.25 | 34.120 D | -0.555 C | 27.451 | 1448.1 |
| | 158.85 | 34.127 D | -0.551 C | 27.456 | 1448.1 |
| | 159.70 | 34.133 D | -0.543 C | 27.461 | 1448.2 |
| | 160.45 | 34.140 D | -0.538 C | 27.466 | 1448.2 |
| | 161.15 | 34.143 D | -0.532 C | 27.468 | 1448.3 |
| | 161.75 | 34.149 D | -0.528 C | 27.472 | 1448.3 |
| | 162.65 | 34.158 D | -0.519 C | 27.480 | 1448.4 |
| | 163.25 | 34.162 D | -0.514 C | 27.483 | 1448.4 |
| | 163.95 | 34.167 D | -0.507 C | 27.486 | 1448.5 |
| | 164.65 | 34.177 D | -0.502 C | 27.494 | 1448.5 |
| | 165.35 | 34.183 D | -0.495 C | 27.499 | 1448.6 |
| | 166.00 | 34.189 D | -0.488 C | 27.503 | 1448.6 |
| | 166.80 | 34.198 D | -0.481 C | 27.510 | 1448.7 |
| | 167.50 | 34.203 D | -0.474 C | 27.514 | 1448.7 |
| | 168.15 | 34.212 D | -0.467 C | 27.521 | 1448.8 |
| | 168.80 | 34.221 D | -0.461 C | 27.528 | 1448.9 |
| | 169.60 | 34.229 D | -0.452 C | 27.534 | 1448.9 |
| | 170.30 | 34.237 D | -0.446 C | 27.540 | 1449.0 |
| | 171.00 | 34.244 D | -0.438 C | 27.545 | 1449.0 |
| | 171.95 | 34.254 D | -0.427 C | 27.553 | 1449.1 |
| | 172.45 | 34.261 D | -0.423 C | 27.558 | 1449.1 |
| | 173.15 | 34.270 D | -0.414 C | 27.566 | 1449.2 |
| | 173.90 | 34.278 D | -0.405 C | 27.572 | 1449.3 |
| | 174.60 | 34.285 D | -0.397 C | 27.577 | 1449.3 |
| | 175.25 | 34.297 D | -0.388 C | 27.586 | 1449.4 |
| | 176.00 | 34.305 D | -0.379 C | 27.592 | 1449.5 |
| | 176.60 | 34.313 D | -0.373 C | 27.598 | 1449.5 |
| | 177.45 | 34.322 D | -0.364 C | 27.605 | 1449.6 |
| | 178.05 | 34.331 D | -0.359 C | 27.612 | 1449.6 |
| | 178.80 | 34.337 D | -0.350 C | 27.617 | 1449.7 |
| | 179.50 | 34.344 D | -0.342 C | 27.622 | 1449.7 |
| | 180.30 | 34.354 D | -0.336 C | 27.629 | 1449.8 |
| | 180.95 | 34.357 D | -0.330 C | 27.632 | 1449.8 |
| | 181.70 | 34.364 D | -0.323 C | 27.637 | 1449.9 |
| | 182.40 | 34.369 D | -0.315 C | 27.641 | 1450.0 |
| | 183.05 | 34.378 D | -0.308 C | 27.648 | 1450.0 |
| | 183.85 | 34.387 D | -0.301 C | 27.655 | 1450.1 |
| | 184.60 | 34.392 D | -0.293 C | 27.658 | 1450.1 |
| | 185.25 | 34.398 D | -0.290 C | 27.663 | 1450.2 |
| | 185.95 | 34.404 D | -0.283 C | 27.668 | 1450.2 |
| | 186.65 | 34.409 D | -0.279 C | 27.672 | 1450.2 |
| | 187.35 | 34.411 D | -0.276 C | 27.673 | 1450.3 |
| | 188.15 | 34.413 D | -0.272 C | 27.675 | 1450.3 |
| | 188.90 | 34.420 D | -0.268 C | 27.680 | 1450.4 |
| | 189.70 | 34.423 D | -0.261 C | 27.682 | 1450.4 |

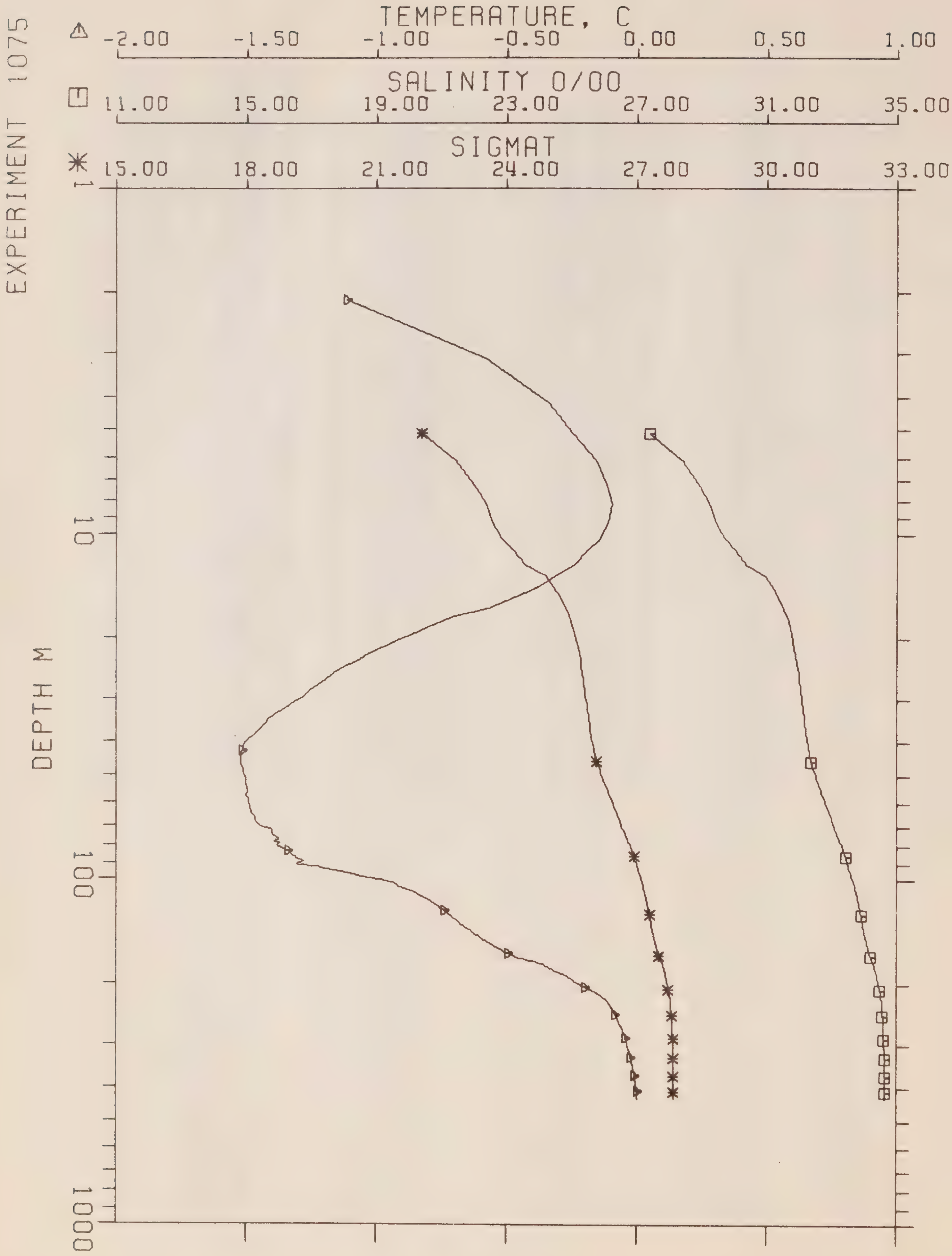
| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 190.35 | 34.429 D | -0.255 C | 27.686 | 1450.4 |
| | 191.00 | 34.435 D | -0.251 C | 27.691 | 1450.5 |
| | 191.75 | 34.438 D | -0.246 C | 27.693 | 1450.5 |
| | 192.30 | 34.443 D | -0.243 C | 27.697 | 1450.6 |
| | 193.10 | 34.448 D | -0.239 C | 27.701 | 1450.6 |
| | 193.75 | 34.451 D | -0.235 C | 27.704 | 1450.6 |
| | 194.60 | 34.456 D | -0.229 C | 27.707 | 1450.7 |
| | 195.45 | 34.460 D | -0.221 C | 27.710 | 1450.7 |
| | 196.00 | 34.466 D | -0.217 C | 27.714 | 1450.8 |
| | 196.75 | 34.472 D | -0.212 C | 27.719 | 1450.8 |
| | 197.45 | 34.475 D | -0.208 C | 27.721 | 1450.8 |
| | 198.25 | 34.478 D | -0.203 C | 27.724 | 1450.9 |
| | 198.80 | 34.483 D | -0.202 C | 27.727 | 1450.9 |
| | 199.55 | 34.487 D | -0.195 C | 27.731 | 1451.0 |
| | 200.35 | 34.491 D | -0.190 C | 27.734 | 1451.0 |
| | 201.10 | 34.496 D | -0.187 C | 27.737 | 1451.0 |
| | 201.80 | 34.498 D | -0.183 C | 27.739 | 1451.1 |
| | 202.55 | 34.501 D | -0.180 C | 27.741 | 1451.1 |
| | 203.25 | 34.503 D | -0.177 C | 27.743 | 1451.1 |
| | 203.90 | 34.506 D | -0.176 C | 27.745 | 1451.1 |
| | 204.70 | 34.508 D | -0.173 C | 27.746 | 1451.2 |
| | 205.40 | 34.511 D | -0.170 C | 27.749 | 1451.2 |
| | 206.20 | 34.515 D | -0.167 C | 27.752 | 1451.2 |
| | 206.95 | 34.517 D | -0.162 C | 27.753 | 1451.3 |
| | 207.55 | 34.520 D | -0.160 C | 27.756 | 1451.3 |
| | 208.30 | 34.524 D | -0.156 C | 27.758 | 1451.3 |
| | 209.10 | 34.526 D | -0.152 C | 27.760 | 1451.4 |
| | 209.85 | 34.528 D | -0.149 C | 27.761 | 1451.4 |
| | 210.50 | 34.530 D | -0.147 C | 27.763 | 1451.4 |
| | 211.10 | 34.536 D | -0.148 C | 27.768 | 1451.4 |
| | 211.85 | 34.534 D | -0.145 C | 27.766 | 1451.5 |
| | 212.65 | 34.536 D | -0.141 C | 27.767 | 1451.5 |
| | 213.30 | 34.538 D | -0.142 C | 27.769 | 1451.5 |
| | 214.10 | 34.540 D | -0.138 C | 27.771 | 1451.5 |
| | 214.65 | 34.541 D | -0.139 C | 27.771 | 1451.5 |
| | 215.40 | 34.540 D | -0.135 C | 27.771 | 1451.6 |
| | 216.15 | 34.543 D | -0.133 C | 27.773 | 1451.6 |
| | 216.95 | 34.545 D | -0.130 C | 27.774 | 1451.6 |
| | 217.70 | 34.548 D | -0.128 C | 27.777 | 1451.6 |
| | 218.40 | 34.551 D | -0.127 C | 27.779 | 1451.7 |
| | 219.10 | 34.550 D | -0.125 C | 27.778 | 1451.7 |
| | 220.00 | 34.554 D | -0.120 C | 27.781 | 1451.7 |
| | 220.45 | 34.554 D | -0.124 C | 27.781 | 1451.7 |
| | 221.30 | 34.554 D | -0.121 C | 27.781 | 1451.7 |
| | 221.90 | 34.556 D | -0.123 C | 27.783 | 1451.7 |
| | 222.75 | 34.557 D | -0.118 C | 27.783 | 1451.8 |
| | 223.45 | 34.557 D | -0.117 C | 27.783 | 1451.8 |
| | 224.15 | 34.558 D | -0.116 C | 27.784 | 1451.8 |
| | 224.90 | 34.559 D | -0.115 C | 27.785 | 1451.8 |
| | 225.55 | 34.559 D | -0.114 C | 27.785 | 1451.9 |
| | 226.30 | 34.562 D | -0.113 C | 27.787 | 1451.9 |
| | 227.05 | 34.565 D | -0.111 C | 27.789 | 1451.9 |
| | 227.80 | 34.565 D | -0.110 C | 27.789 | 1451.9 |
| | 228.35 | 34.563 D | -0.111 C | 27.788 | 1451.9 |
| | 229.15 | 34.564 D | -0.109 C | 27.789 | 1451.9 |
| | 229.85 | 34.567 D | -0.109 C | 27.791 | 1452.0 |
| | 230.65 | 34.567 D | -0.107 C | 27.791 | 1452.0 |
| | 231.20 | 34.567 D | -0.107 C | 27.790 | 1452.0 |
| | 232.00 | 34.570 D | -0.104 C | 27.793 | 1452.0 |
| | 232.45 | 34.569 D | -0.107 C | 27.792 | 1452.0 |
| | 233.35 | 34.572 D | -0.103 C | 27.795 | 1452.1 |
| | 234.05 | 34.572 D | -0.101 C | 27.795 | 1452.1 |
| | 234.80 | 34.572 D | -0.100 C | 27.795 | 1452.1 |
| | 235.50 | 34.574 D | -0.099 C | 27.796 | 1452.1 |
| | 236.10 | 34.576 D | -0.101 C | 27.797 | 1452.1 |
| | 236.80 | 34.574 D | -0.099 C | 27.796 | 1452.1 |
| | 237.65 | 34.576 D | -0.097 C | 27.797 | 1452.2 |
| | 238.30 | 34.578 D | -0.097 C | 27.799 | 1452.2 |
| | 239.05 | 34.578 D | -0.096 C | 27.799 | 1452.2 |

| DEPTH | PRESS | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| | 239.75 | 34.578 | D | -0.095 | C | 27.799 | 1452.2 |
| | 240.45 | 34.579 | D | -0.094 | C | 27.800 | 1452.2 |
| | 241.20 | 34.581 | D | -0.092 | C | 27.801 | 1452.2 |
| | 241.85 | 34.582 | D | -0.091 | C | 27.802 | 1452.3 |
| | 242.55 | 34.583 | D | -0.092 | C | 27.803 | 1452.3 |
| | 243.20 | 34.584 | D | -0.092 | C | 27.804 | 1452.3 |
| | 244.00 | 34.583 | D | -0.089 | C | 27.803 | 1452.3 |
| | 244.65 | 34.584 | D | -0.089 | C | 27.804 | 1452.3 |
| | 245.30 | 34.585 | D | -0.088 | C | 27.805 | 1452.3 |
| | 246.15 | 34.587 | D | -0.085 | C | 27.806 | 1452.4 |
| | 246.65 | 34.588 | D | -0.088 | C | 27.806 | 1452.4 |
| | 247.55 | 34.589 | D | -0.085 | C | 27.808 | 1452.4 |
| | 248.20 | 34.589 | D | -0.084 | C | 27.808 | 1452.4 |
| | 248.90 | 34.590 | D | -0.084 | C | 27.808 | 1452.4 |
| | 249.65 | 34.590 | D | -0.082 | C | 27.808 | 1452.4 |
| | 250.40 | 34.591 | D | -0.080 | C | 27.808 | 1452.5 |
| | 251.10 | 34.593 | D | -0.080 | C | 27.810 | 1452.5 |
| | 251.80 | 34.594 | D | -0.080 | C | 27.811 | 1452.5 |
| | 252.45 | 34.595 | D | -0.080 | C | 27.812 | 1452.5 |
| | 253.30 | 34.596 | D | -0.076 | C | 27.812 | 1452.5 |
| | 253.85 | 34.596 | D | -0.078 | C | 27.813 | 1452.5 |
| | 254.60 | 34.596 | D | -0.076 | C | 27.813 | 1452.6 |
| | 255.35 | 34.597 | D | -0.074 | C | 27.813 | 1452.6 |
| | 256.15 | 34.600 | D | -0.072 | C | 27.815 | 1452.6 |
| | 256.75 | 34.597 | D | -0.073 | C | 27.814 | 1452.6 |
| | 257.55 | 34.600 | D | -0.071 | C | 27.816 | 1452.6 |
| | 258.25 | 34.602 | D | -0.070 | C | 27.817 | 1452.7 |
| | 258.90 | 34.601 | D | -0.070 | C | 27.817 | 1452.7 |
| | 259.70 | 34.604 | D | -0.068 | C | 27.819 | 1452.7 |
| | 260.40 | 34.603 | D | -0.068 | C | 27.818 | 1452.7 |
| | 261.10 | 34.605 | D | -0.068 | C | 27.819 | 1452.7 |
| | 261.80 | 34.605 | D | -0.068 | C | 27.819 | 1452.7 |
| | 262.55 | 34.606 | D | -0.066 | C | 27.820 | 1452.7 |
| | 263.20 | 34.606 | D | -0.066 | C | 27.820 | 1452.8 |
| | 263.90 | 34.605 | D | -0.066 | C | 27.820 | 1452.8 |
| | 264.55 | 34.605 | D | -0.066 | C | 27.819 | 1452.8 |
| | 265.35 | 34.607 | D | -0.064 | C | 27.821 | 1452.8 |
| | 266.00 | 34.606 | D | -0.064 | C | 27.820 | 1452.8 |
| | 266.85 | 34.609 | D | -0.062 | C | 27.823 | 1452.8 |
| | 267.55 | 34.609 | D | -0.062 | C | 27.822 | 1452.8 |
| | 268.35 | 34.610 | D | -0.060 | C | 27.823 | 1452.9 |
| | 268.95 | 34.610 | D | -0.061 | C | 27.823 | 1452.9 |
| | 269.60 | 34.610 | D | -0.063 | C | 27.823 | 1452.9 |
| | 270.40 | 34.610 | D | -0.061 | C | 27.823 | 1452.9 |
| | 271.05 | 34.611 | D | -0.062 | C | 27.824 | 1452.9 |
| | 271.85 | 34.612 | D | -0.058 | C | 27.824 | 1452.9 |
| | 272.55 | 34.611 | D | -0.057 | C | 27.824 | 1453.0 |
| | 273.40 | 34.613 | D | -0.056 | C | 27.825 | 1453.0 |
| | 274.00 | 34.614 | D | -0.057 | C | 27.826 | 1453.0 |
| | 274.60 | 34.613 | D | -0.058 | C | 27.825 | 1453.0 |
| | 275.50 | 34.615 | D | -0.055 | C | 27.827 | 1453.0 |
| | 276.15 | 34.615 | D | -0.057 | C | 27.827 | 1453.0 |
| | 276.85 | 34.614 | D | -0.054 | C | 27.826 | 1453.0 |
| | 277.55 | 34.615 | D | -0.054 | C | 27.827 | 1453.1 |
| | 278.30 | 34.615 | D | -0.053 | C | 27.827 | 1453.1 |
| | 279.20 | 34.618 | D | -0.051 | C | 27.829 | 1453.1 |
| | 279.75 | 34.617 | D | -0.052 | C | 27.829 | 1453.1 |
| | 280.60 | 34.619 | D | -0.051 | C | 27.830 | 1453.1 |
| | 281.25 | 34.617 | D | -0.051 | C | 27.828 | 1453.1 |
| | 281.85 | 34.616 | D | -0.052 | C | 27.828 | 1453.1 |
| | 282.65 | 34.618 | D | -0.050 | C | 27.829 | 1453.2 |
| | 283.35 | 34.618 | D | -0.052 | C | 27.829 | 1453.2 |
| | 284.05 | 34.619 | D | -0.051 | C | 27.830 | 1453.2 |
| | 284.90 | 34.620 | D | -0.049 | C | 27.830 | 1453.2 |
| | 285.55 | 34.618 | D | -0.049 | C | 27.829 | 1453.2 |
| | 286.25 | 34.620 | D | -0.050 | C | 27.831 | 1453.2 |
| | 287.05 | 34.620 | D | -0.047 | C | 27.831 | 1453.3 |
| | 287.75 | 34.620 | D | -0.048 | C | 27.830 | 1453.3 |
| | 288.50 | 34.620 | D | -0.046 | C | 27.830 | 1453.3 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 289.15 | 34.622 D | -0.047 C | 27.832 | 1453.3 |
| | 289.95 | 34.620 D | -0.046 C | 27.831 | 1453.3 |
| | 290.65 | 34.621 D | -0.046 C | 27.832 | 1453.3 |
| | 291.35 | 34.620 D | -0.045 C | 27.830 | 1453.3 |
| | 292.20 | 34.623 D | -0.043 C | 27.833 | 1453.4 |
| | 292.75 | 34.622 D | -0.046 C | 27.832 | 1453.4 |
| | 293.55 | 34.622 D | -0.043 C | 27.832 | 1453.4 |
| | 294.25 | 34.621 D | -0.044 C | 27.831 | 1453.4 |
| | 295.00 | 34.624 D | -0.043 C | 27.833 | 1453.4 |
| | 295.70 | 34.622 D | -0.043 C | 27.832 | 1453.4 |
| | 296.45 | 34.623 D | -0.043 C | 27.833 | 1453.4 |
| | 297.05 | 34.623 D | -0.043 C | 27.833 | 1453.4 |
| | 297.90 | 34.623 D | -0.041 C | 27.833 | 1453.5 |
| | 298.60 | 34.623 D | -0.040 C | 27.832 | 1453.5 |
| | 299.35 | 34.625 D | -0.040 C | 27.834 | 1453.5 |
| | 300.20 | 34.625 D | -0.035 C | 27.834 | 1453.5 |
| | 300.95 | 34.626 D | -0.035 C | 27.835 | 1453.5 |
| | 301.35 | 34.624 D | -0.041 C | 27.833 | 1453.5 |
| | 302.15 | 34.624 D | -0.038 C | 27.833 | 1453.5 |
| | 302.80 | 34.625 D | -0.039 C | 27.834 | 1453.6 |
| | 303.70 | 34.625 D | -0.035 C | 27.834 | 1453.6 |
| | 304.30 | 34.626 D | -0.036 C | 27.835 | 1453.6 |
| | 305.05 | 34.625 D | -0.035 C | 27.834 | 1453.6 |
| | 305.70 | 34.626 D | -0.035 C | 27.835 | 1453.6 |
| | 306.50 | 34.627 D | -0.035 C | 27.835 | 1453.6 |
| | 307.20 | 34.625 D | -0.034 C | 27.834 | 1453.7 |
| | 307.95 | 34.626 D | -0.033 C | 27.835 | 1453.7 |
| | 308.60 | 34.626 D | -0.033 C | 27.835 | 1453.7 |
| | 309.40 | 34.627 D | -0.033 C | 27.836 | 1453.7 |
| | 310.00 | 34.629 D | -0.034 C | 27.837 | 1453.7 |
| | 310.75 | 34.628 D | -0.033 C | 27.836 | 1453.7 |
| | 311.40 | 34.627 D | -0.033 C | 27.836 | 1453.7 |
| | 312.20 | 34.627 D | -0.032 C | 27.836 | 1453.7 |
| | 312.90 | 34.630 D | -0.032 C | 27.837 | 1453.8 |
| | 313.60 | 34.628 D | -0.031 C | 27.836 | 1453.8 |
| | 314.40 | 34.628 D | -0.030 C | 27.836 | 1453.8 |
| | 315.05 | 34.629 D | -0.031 C | 27.837 | 1453.8 |
| | 315.70 | 34.629 D | -0.032 C | 27.837 | 1453.8 |
| | 316.50 | 34.629 D | -0.030 C | 27.837 | 1453.8 |
| | 317.25 | 34.629 D | -0.030 C | 27.837 | 1453.8 |
| | 317.90 | 34.630 D | -0.030 C | 27.838 | 1453.9 |
| | 318.70 | 34.630 D | -0.029 C | 27.838 | 1453.9 |
| | 319.35 | 34.630 D | -0.029 C | 27.837 | 1453.9 |
| | 320.15 | 34.630 D | -0.029 C | 27.838 | 1453.9 |
| | 320.80 | 34.630 D | -0.028 C | 27.838 | 1453.9 |
| | 321.50 | 34.630 D | -0.029 C | 27.837 | 1453.9 |
| | 322.35 | 34.631 D | -0.027 C | 27.839 | 1453.9 |
| | 323.05 | 34.630 D | -0.026 C | 27.837 | 1454.0 |
| | 323.75 | 34.629 D | -0.026 C | 27.837 | 1454.0 |
| | 324.60 | 34.633 D | -0.025 C | 27.840 | 1454.0 |
| | 325.15 | 34.631 D | -0.026 C | 27.839 | 1454.0 |
| | 325.90 | 34.632 D | -0.026 C | 27.839 | 1454.0 |
| | 326.55 | 34.630 D | -0.026 C | 27.838 | 1454.0 |
| | 327.30 | 34.630 D | -0.026 C | 27.838 | 1454.0 |
| | 328.00 | 34.632 D | -0.026 C | 27.840 | 1454.0 |
| | 328.65 | 34.630 D | -0.027 C | 27.838 | 1454.0 |
| | 329.35 | 34.630 D | -0.027 C | 27.838 | 1454.1 |
| | 330.25 | 34.632 D | -0.024 C | 27.839 | 1454.1 |
| | 330.95 | 34.633 D | -0.023 C | 27.840 | 1454.1 |
| | 331.65 | 34.632 D | -0.024 C | 27.839 | 1454.1 |
| | 332.25 | 34.630 D | -0.026 C | 27.838 | 1454.1 |
| | 333.05 | 34.632 D | -0.024 C | 27.839 | 1454.1 |
| | 333.80 | 34.633 D | -0.023 C | 27.840 | 1454.1 |
| | 334.50 | 34.632 D | -0.024 C | 27.839 | 1454.2 |
| | 335.35 | 34.634 D | -0.022 C | 27.840 | 1454.2 |
| | 336.00 | 34.632 D | -0.022 C | 27.839 | 1454.2 |
| | 336.65 | 34.633 D | -0.023 C | 27.839 | 1454.2 |
| | 337.35 | 34.631 D | -0.022 C | 27.838 | 1454.2 |
| | 338.15 | 34.632 D | -0.021 C | 27.839 | 1454.2 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 338.95 | 34.634 D | -0.020 C | 27.840 | 1454.2 |
| | 339.60 | 34.633 D | -0.021 C | 27.840 | 1454.3 |
| | 340.35 | 34.632 D | -0.021 C | 27.839 | 1454.3 |
| | 341.10 | 34.632 D | -0.020 C | 27.839 | 1454.3 |
| | 341.90 | 34.634 D | -0.018 C | 27.840 | 1454.3 |
| | 342.50 | 34.634 D | -0.021 C | 27.841 | 1454.3 |
| | 343.10 | 34.632 D | -0.022 C | 27.839 | 1454.3 |
| | 343.85 | 34.633 D | -0.022 C | 27.840 | 1454.3 |
| | 344.60 | 34.634 D | -0.022 C | 27.841 | 1454.3 |
| | 345.45 | 34.634 D | -0.019 C | 27.841 | 1454.4 |
| | 346.15 | 34.635 D | -0.020 C | 27.841 | 1454.4 |
| | 346.85 | 34.632 D | -0.018 C | 27.839 | 1454.4 |
| | 347.60 | 34.633 D | -0.018 C | 27.840 | 1454.4 |
| | 348.25 | 34.634 D | -0.019 C | 27.841 | 1454.4 |
| | 349.00 | 34.635 D | -0.019 C | 27.841 | 1454.4 |
| | 349.80 | 34.634 D | -0.017 C | 27.840 | 1454.4 |
| | 350.45 | 34.633 D | -0.017 C | 27.840 | 1454.5 |
| | 351.25 | 34.635 D | -0.015 C | 27.841 | 1454.5 |
| | 351.90 | 34.634 D | -0.016 C | 27.841 | 1454.5 |
| | 352.45 | 34.633 D | -0.020 C | 27.840 | 1454.5 |
| | 353.35 | 34.636 D | -0.017 C | 27.842 | 1454.5 |
| | 354.10 | 34.633 D | -0.016 C | 27.839 | 1454.5 |
| | 354.80 | 34.635 D | -0.016 C | 27.841 | 1454.5 |
| | 355.50 | 34.635 D | -0.016 C | 27.841 | 1454.5 |
| | 356.20 | 34.634 D | -0.017 C | 27.841 | 1454.5 |
| | 356.95 | 34.634 D | -0.015 C | 27.841 | 1454.6 |
| | 357.60 | 34.634 D | -0.017 C | 27.840 | 1454.6 |
| | 358.45 | 34.636 D | -0.015 C | 27.842 | 1454.6 |
| | 359.10 | 34.634 D | -0.016 C | 27.841 | 1454.6 |
| | 359.85 | 34.634 D | -0.015 C | 27.840 | 1454.6 |
| | 360.75 | 34.635 D | -0.012 C | 27.841 | 1454.6 |
| | 361.40 | 34.634 D | -0.013 C | 27.840 | 1454.6 |
| | 361.95 | 34.634 D | -0.015 C | 27.841 | 1454.6 |
| | 362.75 | 34.634 D | -0.014 C | 27.840 | 1454.7 |
| | 363.55 | 34.638 D | -0.014 C | 27.843 | 1454.7 |
| | 364.15 | 34.636 D | -0.014 C | 27.842 | 1454.7 |
| | 364.80 | 34.635 D | -0.013 C | 27.841 | 1454.7 |
| | 365.55 | 34.635 D | -0.014 C | 27.841 | 1454.7 |
| | 366.35 | 34.637 D | -0.013 C | 27.842 | 1454.7 |
| | 367.00 | 34.636 D | -0.013 C | 27.842 | 1454.7 |
| | 367.70 | 34.636 D | -0.013 C | 27.842 | 1454.8 |
| | 368.45 | 34.637 D | -0.013 C | 27.842 | 1454.8 |
| | 369.10 | 34.635 D | -0.013 C | 27.841 | 1454.8 |
| | 369.90 | 34.635 D | -0.012 C | 27.841 | 1454.8 |
| | 370.55 | 34.635 D | -0.012 C | 27.841 | 1454.8 |
| | 371.25 | 34.636 D | -0.011 C | 27.842 | 1454.8 |
| | 372.05 | 34.637 D | -0.010 C | 27.843 | 1454.8 |
| | 372.65 | 34.636 D | -0.012 C | 27.842 | 1454.8 |
| | 373.45 | 34.636 D | -0.011 C | 27.842 | 1454.9 |
| | 374.05 | 34.636 D | -0.014 C | 27.842 | 1454.9 |
| | 374.80 | 34.635 D | -0.012 C | 27.841 | 1454.9 |
| | 375.55 | 34.637 D | -0.010 C | 27.842 | 1454.9 |
| | 376.10 | 34.634 D | -0.013 C | 27.840 | 1454.9 |
| | 377.05 | 34.636 D | -0.008 C | 27.842 | 1454.9 |
| | 377.70 | 34.636 D | -0.011 C | 27.842 | 1454.9 |
| | 378.35 | 34.635 D | -0.010 C | 27.841 | 1454.9 |
| | 379.10 | 34.636 D | -0.010 C | 27.841 | 1455.0 |
| | 379.90 | 34.637 D | -0.008 C | 27.843 | 1455.0 |
| | 380.50 | 34.635 D | -0.010 C | 27.841 | 1455.0 |
| | 381.25 | 34.638 D | -0.009 C | 27.843 | 1455.0 |
| | 381.95 | 34.636 D | -0.008 C | 27.842 | 1455.0 |
| | 382.65 | 34.638 D | -0.010 C | 27.843 | 1455.0 |
| | 383.30 | 34.637 D | -0.011 C | 27.843 | 1455.0 |
| | 384.10 | 34.636 D | -0.009 C | 27.842 | 1455.0 |
| | 384.90 | 34.637 D | -0.008 C | 27.843 | 1455.1 |
| | 385.50 | 34.637 D | -0.009 C | 27.842 | 1455.1 |
| | 386.30 | 34.638 D | -0.009 C | 27.843 | 1455.1 |
| | 387.00 | 34.639 D | -0.009 C | 27.844 | 1455.1 |
| | 387.75 | 34.637 D | -0.007 C | 27.843 | 1455.1 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 388.50 | 34.637 D | -0.007 C | 27.842 | 1455.1 |
| | 389.15 | 34.637 D | -0.007 C | 27.842 | 1455.1 |
| | 389.80 | 34.636 D | -0.008 C | 27.841 | 1455.1 |
| | 390.50 | 34.637 D | -0.008 C | 27.842 | 1455.2 |
| | 391.20 | 34.635 D | -0.008 C | 27.841 | 1455.2 |
| | 392.00 | 34.636 D | -0.007 C | 27.842 | 1455.2 |
| | 392.75 | 34.637 D | -0.007 C | 27.842 | 1455.2 |
| | 393.45 | 34.637 D | -0.007 C | 27.842 | 1455.2 |
| | 394.10 | 34.636 D | -0.008 C | 27.842 | 1455.2 |
| | 394.90 | 34.638 D | -0.006 C | 27.843 | 1455.2 |
| | 395.60 | 34.637 D | -0.007 C | 27.842 | 1455.2 |
| | 396.20 | 34.636 D | -0.008 C | 27.842 | 1455.2 |
| | 397.05 | 34.636 D | -0.007 C | 27.842 | 1455.3 |
| | 397.85 | 34.638 D | -0.005 C | 27.843 | 1455.3 |
| | 398.55 | 34.637 D | -0.005 C | 27.842 | 1455.3 |
| | 399.15 | 34.637 D | -0.006 C | 27.842 | 1455.3 |
| | 400.10 | 34.640 D | -0.003 C | 27.844 | 1455.3 |
| | 400.50 | 34.636 D | -0.009 C | 27.842 | 1455.3 |
| | 401.40 | 34.637 D | -0.005 C | 27.842 | 1455.3 |
| | 402.05 | 34.637 D | -0.005 C | 27.842 | 1455.4 |
| | 402.80 | 34.637 D | -0.006 C | 27.843 | 1455.4 |
| | 403.60 | 34.639 D | -0.005 C | 27.844 | 1455.4 |
| | 404.35 | 34.639 D | -0.004 C | 27.843 | 1455.4 |
| | 404.85 | 34.638 D | -0.006 C | 27.843 | 1455.4 |
| | 405.70 | 34.636 D | -0.005 C | 27.841 | 1455.4 |
| | 406.40 | 34.637 D | -0.005 C | 27.842 | 1455.4 |
| | 407.20 | 34.639 D | -0.005 C | 27.844 | 1455.4 |
| | 407.85 | 34.638 D | -0.004 C | 27.843 | 1455.5 |
| | 408.65 | 34.638 D | -0.003 C | 27.843 | 1455.5 |
| | 409.35 | 34.638 D | -0.004 C | 27.843 | 1455.5 |
| | 410.30 | 34.639 D | 0.0 C | 27.844 | 1455.5 |
| | 410.75 | 34.638 D | -0.004 C | 27.843 | 1455.5 |
| | 411.50 | 34.640 D | -0.004 C | 27.845 | 1455.5 |
| | 412.20 | 34.639 D | -0.005 C | 27.844 | 1455.5 |
| | 412.95 | 34.638 D | -0.003 C | 27.843 | 1455.5 |
| | 413.60 | 34.638 D | -0.003 C | 27.843 | 1455.6 |
| | 414.25 | 34.637 D | -0.003 C | 27.842 | 1455.6 |
| | 414.60 | 34.637 D | -0.003 C | 27.842 | 1455.6 |
| | 414.60 | 34.639 D | -0.003 C | 27.843 | 1455.6 |
| | 414.60 | 34.639 D | -0.003 C | 27.843 | 1455.6 |
| | 414.60 | 34.640 D | -0.003 C | 27.844 | 1455.6 |
| | 414.60 | 34.637 D | -0.002 C | 27.842 | 1455.6 |
| | 414.60 | 34.637 D | -0.002 C | 27.842 | 1455.6 |


EXPERIMENT 1075
TEMPERATURE, C
-2.00 -1.50 -1.00 -0.50 0.00 0.50 1.00
SALINITY 0/00
11.00 15.00 19.00 23.00 27.00 31.00 35.00
SIGMAT
15.00 18.00 21.00 24.00 27.00 30.00 33.00
DEPTH M
1
10
100
1000

| CRUISE | | D'IBERVILLE FIORD-75 | | EXPER NO. 1075 | |
|---|---|---|---|---|---|
| LAT N.80-34-30 | | LONG W.79-12-00 | | WATER DEPTH 455 | |
| DEPTH INCR. | | DATE 080475 | | LOCAL TIME 1635 | |

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 2.0 | 2.10 | | -1.114 D | | |
| 3.0 | 3.10 | | -0.580 D | | |
| 4.0 | 4.15 | | -0.340 D | | |
| 5.0 | 5.10 | 27.416 E | -0.245 D | 22.035 | 1437.7 |
| 6.0 | 6.15 | 28.411 E | -0.154 D | 22.833 | 1439.5 |
| 7.0 | 7.20 | 28.938 E | -0.116 D | 23.256 | 1440.5 |
| 8.0 | 8.15 | 29.255 E | -0.096 D | 23.511 | 1441.0 |
| 9.0 | 9.25 | 29.454 E | -0.112 D | 23.672 | 1441.2 |
| 10.0 | 10.25 | 29.729 E | -0.140 D | 23.895 | 1441.5 |
| 11.0 | 11.15 | 30.050 E | -0.190 D | 24.154 | 1441.7 |
| 12.0 | 12.25 | 30.368 E | -0.238 D | 24.412 | 1442.0 |
| 13.0 | 13.20 | 30.967 E | -0.313 D | 24.807 | 1442.5 |
| 14.0 | 14.25 | 31.192 E | -0.384 D | 25.081 | 1442.5 |
| 15.0 | 15.20 | 31.360 E | -0.463 D | 25.219 | 1442.3 |
| 16.0 | 16.35 | 31.509 E | -0.570 D | 25.343 | 1442.1 |
| 17.0 | 17.25 | 31.624 E | -0.698 D | 25.440 | 1441.6 |
| 18.0 | 18.35 | 31.708 E | -0.783 D | 25.511 | 1441.4 |
| 19.0 | 19.30 | 31.767 E | -0.851 D | 25.560 | 1441.2 |
| 20.0 | 20.25 | 31.814 E | -0.909 D | 25.600 | 1441.0 |
| 21.0 | 21.30 | 31.859 E | -0.973 D | 25.638 | 1440.7 |
| 22.0 | 22.25 | 31.899 E | -1.028 D | 25.672 | 1440.6 |
| 23.0 | 23.30 | 31.929 E | -1.073 D | 25.697 | 1440.4 |
| 24.0 | 24.30 | 31.955 E | -1.126 D | 25.720 | 1440.2 |
| 25.0 | 25.35 | 31.982 E | -1.164 D | 25.743 | 1440.1 |
| 26.0 | 26.35 | 32.001 E | -1.194 D | 25.759 | 1440.0 |
| 27.0 | 27.30 | 32.024 E | -1.224 D | 25.778 | 1439.9 |
| 28.0 | 28.35 | 32.046 E | -1.256 D | 25.797 | 1439.8 |
| 29.0 | 29.40 | 32.061 E | -1.279 D | 25.810 | 1439.7 |
| 30.0 | 30.35 | 32.087 E | -1.308 D | 25.831 | 1439.6 |
| 31.0 | 31.40 | 32.105 E | -1.335 D | 25.846 | 1439.6 |
| 32.0 | 32.35 | 32.128 E | -1.363 D | 25.866 | 1439.5 |
| 33.0 | 33.40 | 32.147 E | -1.392 D | 25.882 | 1439.4 |
| 34.0 | 34.45 | 32.160 E | -1.413 D | 25.893 | 1439.3 |
| 35.0 | 35.30 | 32.175 E | -1.426 D | 25.905 | 1439.3 |
| 36.0 | 36.40 | 32.185 E | -1.441 D | 25.914 | 1439.2 |
| 37.0 | 37.35 | 32.201 E | -1.454 D | 25.928 | 1439.2 |
| 38.0 | 38.45 | 32.223 E | -1.476 D | 25.946 | 1439.2 |
| 39.0 | 39.35 | 32.243 E | -1.491 D | 25.962 | 1439.1 |
| 40.0 | 40.40 | 32.264 E | -1.504 D | 25.979 | 1439.1 |
| 41.0 | 41.40 | 32.284 E | -1.511 D | 25.996 | 1439.1 |
| 42.0 | 42.35 | 32.304 E | -1.517 D | 26.012 | 1439.2 |
| 43.0 | 43.40 | 32.324 E | -1.520 D | 26.029 | 1439.2 |
| 44.0 | 44.35 | 32.348 E | -1.521 D | 26.047 | 1439.2 |
| 45.0 | 45.45 | 32.373 E | -1.520 D | 26.068 | 1439.3 |
| 46.0 | 46.45 | 32.405 E | -1.518 D | 26.094 | 1439.4 |
| 47.0 | 47.40 | 32.437 E | -1.514 D | 26.119 | 1439.4 |
| 48.0 | 48.40 | 32.470 E | -1.511 D | 26.146 | 1439.5 |
| 49.0 | 49.35 | 32.502 E | -1.508 D | 26.172 | 1439.6 |
| 50.0 | 50.50 | 32.534 E | -1.505 D | 26.198 | 1439.7 |
| 51.0 | 51.45 | 32.566 E | -1.501 D | 26.224 | 1439.7 |
| 52.0 | 52.45 | 32.596 E | -1.501 D | 26.248 | 1439.8 |
| 53.0 | 53.45 | 32.629 E | -1.500 D | 26.275 | 1439.9 |
| 54.0 | 54.45 | 32.665 E | -1.497 D | 26.304 | 1440.0 |
| 55.0 | 55.45 | 32.697 E | -1.495 D | 26.330 | 1440.0 |
| 56.0 | 56.45 | 32.725 E | -1.495 D | 26.353 | 1440.1 |
| 57.0 | 57.35 | 32.754 E | -1.500 D | 26.376 | 1440.1 |
| 58.0 | 58.40 | 32.781 E | -1.491 D | 26.398 | 1440.2 |
| 59.0 | 59.45 | 32.810 E | -1.488 D | 26.421 | 1440.3 |
| 60.0 | 60.40 | 32.841 E | -1.488 D | 26.446 | 1440.3 |
| 61.0 | 61.40 | 32.875 E | -1.487 D | 26.474 | 1440.4 |
| 62.0 | 62.45 | 32.907 E | -1.487 D | 26.500 | 1440.5 |
| 63.0 | 63.50 | 32.937 E | -1.480 D | 26.524 | 1440.6 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 64.0 | 64.45 | 32.966 E | -1.481 D | 26.548 | 1440.6 |
| 65.0 | 65.50 | 32.984 E | -1.472 D | 26.562 | 1440.7 |
| 66.0 | 66.55 | 33.009 E | -1.467 D | 26.582 | 1440.8 |
| 67.0 | 67.45 | 33.035 E | -1.463 D | 26.603 | 1440.8 |
| 68.0 | 68.40 | 33.052 E | -1.458 D | 26.617 | 1440.9 |
| 69.0 | 69.50 | 33.069 E | -1.450 D | 26.630 | 1441.0 |
| 70.0 | 70.50 | 33.099 E | -1.432 D | 26.654 | 1441.1 |
| 71.0 | 71.50 | 33.125 E | -1.407 D | 26.674 | 1441.3 |
| 72.0 | 72.50 | 33.153 E | -1.401 D | 26.697 | 1441.4 |
| 73.0 | 73.45 | 33.177 E | -1.399 D | 26.716 | 1441.4 |
| 74.0 | 74.50 | 33.206 E | -1.396 D | 26.739 | 1441.5 |
| 75.0 | 75.55 | 33.226 E | -1.373 D | 26.755 | 1441.7 |
| 76.0 | 76.55 | 33.259 E | -1.374 D | 26.782 | 1441.7 |
| 77.0 | 77.50 | 33.285 E | -1.393 D | 26.803 | 1441.7 |
| 78.0 | 78.50 | 33.315 E | -1.371 D | 26.827 | 1441.9 |
| 79.0 | 79.50 | 33.335 E | -1.379 D | 26.844 | 1441.9 |
| 80.0 | 80.60 | 33.356 E | -1.375 D | 26.861 | 1441.9 |
| 81.0 | 81.55 | 33.376 E | -1.348 D | 26.876 | 1442.1 |
| 82.0 | 82.60 | 33.394 E | -1.339 D | 26.890 | 1442.2 |
| 83.0 | 83.60 | 33.411 E | -1.330 D | 26.904 | 1442.3 |
| 84.0 | 84.60 | 33.428 E | -1.325 D | 26.918 | 1442.3 |
| 85.0 | 85.50 | 33.443 E | -1.315 D | 26.930 | 1442.4 |
| 86.0 | 86.50 | 33.460 E | -1.309 D | 26.943 | 1442.5 |
| 87.0 | 87.55 | 33.474 E | -1.293 D | 26.954 | 1442.6 |
| 88.0 | 88.55 | 33.491 E | -1.281 D | 26.967 | 1442.7 |
| 89.0 | 89.60 | 33.523 E | -1.308 D | 26.994 | 1442.6 |
| 90.0 | 90.65 | 33.522 E | -1.302 D | 26.993 | 1442.7 |
| 91.0 | 91.70 | 33.533 E | -1.230 D | 27.000 | 1443.0 |
| 92.0 | 92.70 | 33.556 E | -1.201 D | 27.017 | 1443.2 |
| 93.0 | 93.65 | 33.575 E | -1.167 D | 27.031 | 1443.4 |
| 94.0 | 94.65 | 33.591 E | -1.133 D | 27.044 | 1443.6 |
| 95.0 | 95.65 | 33.606 E | -1.117 D | 27.055 | 1443.7 |
| 96.0 | 96.65 | 33.619 E | -1.089 D | 27.065 | 1443.9 |
| 97.0 | 97.65 | 33.637 E | -1.062 D | 27.079 | 1444.1 |
| 98.0 | 98.65 | 33.650 E | -1.025 D | 27.088 | 1444.3 |
| 99.0 | 99.65 | 33.666 E | -0.991 D | 27.100 | 1444.5 |
| 100.0 | 100.65 | 33.683 D | -0.966 C | 27.113 | 1444.6 |
| 101.0 | 101.65 | 33.695 D | -0.945 C | 27.122 | 1444.8 |
| 102.0 | 102.65 | 33.709 D | -0.932 C | 27.132 | 1444.9 |
| 103.0 | 103.70 | 33.719 D | -0.919 C | 27.140 | 1445.0 |
| 104.0 | 104.75 | 33.726 D | -0.909 C | 27.145 | 1445.0 |
| 105.0 | 105.70 | 33.738 D | -0.897 C | 27.155 | 1445.1 |
| 106.0 | 106.70 | 33.748 D | -0.880 C | 27.162 | 1445.2 |
| 107.0 | 107.70 | 33.758 D | -0.861 C | 27.170 | 1445.3 |
| 108.0 | 108.75 | 33.770 D | -0.849 C | 27.179 | 1445.4 |
| 109.0 | 109.80 | 33.781 D | -0.843 C | 27.187 | 1445.5 |
| 110.0 | 110.75 | 33.789 D | -0.833 C | 27.194 | 1445.6 |
| 111.0 | 111.75 | 33.799 D | -0.824 C | 27.201 | 1445.6 |
| 112.0 | 112.80 | 33.806 D | -0.814 C | 27.207 | 1445.7 |
| 113.0 | 113.75 | 33.815 D | -0.805 C | 27.214 | 1445.8 |
| 114.0 | 114.75 | 33.827 D | -0.797 C | 27.223 | 1445.9 |
| 115.0 | 115.80 | 33.834 D | -0.789 C | 27.229 | 1445.9 |
| 116.0 | 116.80 | 33.843 D | -0.781 C | 27.236 | 1446.0 |
| 117.0 | 117.80 | 33.853 D | -0.773 C | 27.243 | 1446.1 |
| 118.0 | 118.90 | 33.860 D | -0.766 C | 27.248 | 1446.1 |
| 119.0 | 119.85 | 33.866 D | -0.759 C | 27.253 | 1446.2 |
| 120.0 | 120.95 | 33.873 D | -0.753 C | 27.259 | 1446.2 |
| 121.0 | 121.90 | 33.880 D | -0.747 C | 27.264 | 1446.3 |
| 122.0 | 122.95 | 33.888 D | -0.741 C | 27.270 | 1446.3 |
| 123.0 | 123.90 | 33.897 D | -0.735 C | 27.277 | 1446.4 |
| 124.0 | 125.00 | 33.904 D | -0.728 C | 27.283 | 1446.5 |
| 125.0 | 126.05 | 33.910 D | -0.722 C | 27.287 | 1446.5 |
| 126.0 | 126.95 | 33.916 D | -0.717 C | 27.292 | 1446.6 |
| 127.0 | 127.90 | 33.921 D | -0.712 C | 27.296 | 1446.6 |
| 128.0 | 128.85 | 33.930 D | -0.706 C | 27.303 | 1446.7 |
| 129.0 | 129.85 | 33.935 D | -0.699 C | 27.307 | 1446.7 |
| 130.0 | 130.85 | 33.944 D | -0.693 C | 27.314 | 1446.8 |
| 131.0 | 131.85 | 33.952 D | -0.688 C | 27.320 | 1446.8 |
| 132.0 | 132.85 | 33.958 D | -0.684 C | 27.325 | 1446.9 |

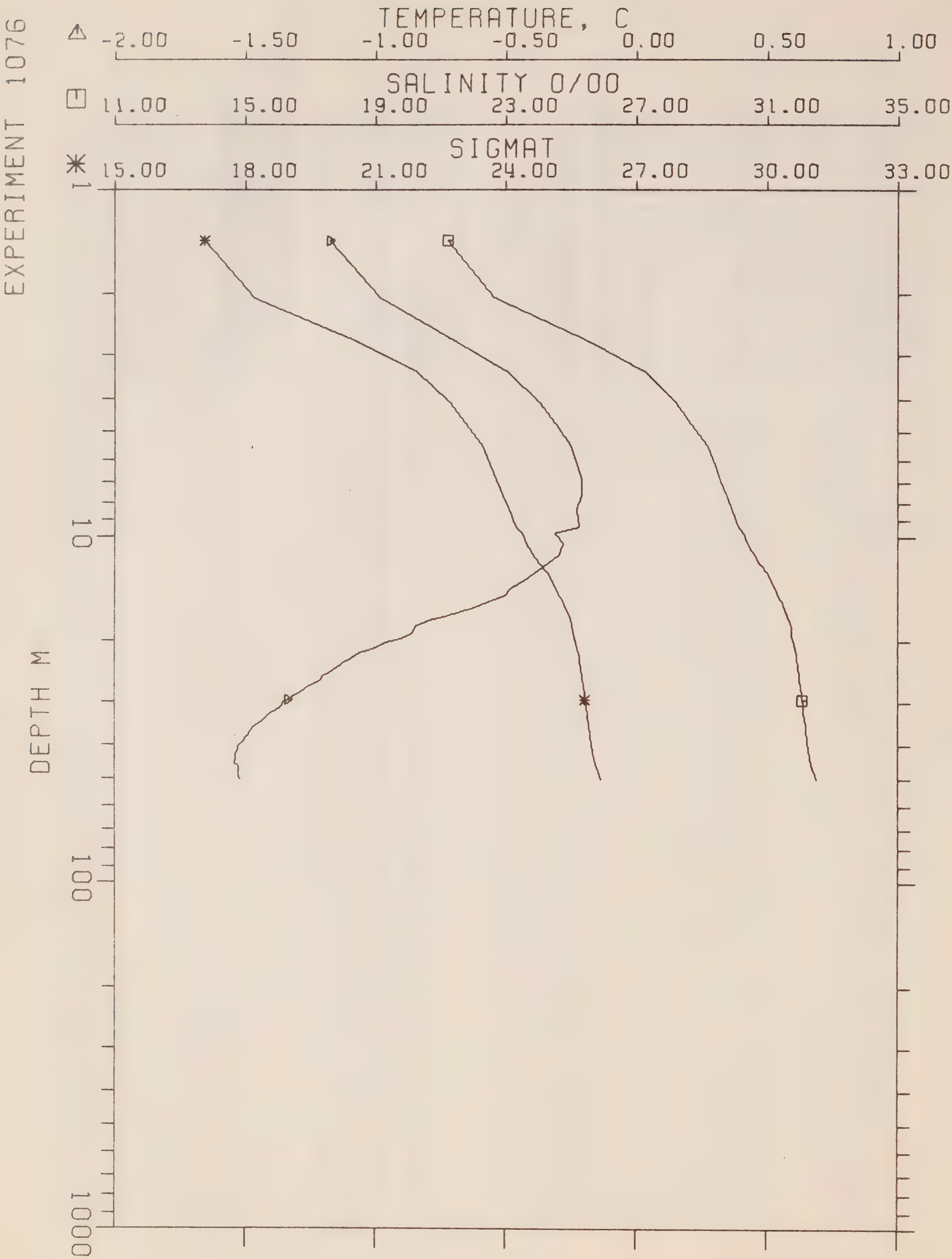
| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 133.0 | 133.95 | 33.962 D | -0.679 C | 27.328 | 1446.9 |
| 134.0 | 134.95 | 33.968 D | -0.672 C | 27.332 | 1447.0 |
| 135.0 | 135.95 | 33.975 D | -0.667 C | 27.337 | 1447.0 |
| 136.0 | 136.95 | 33.982 D | -0.660 C | 27.343 | 1447.1 |
| 137.0 | 137.95 | 33.989 D | -0.655 C | 27.349 | 1447.1 |
| 138.0 | 138.95 | 33.996 D | -0.649 C | 27.354 | 1447.2 |
| 139.0 | 140.00 | 34.005 D | -0.642 C | 27.361 | 1447.2 |
| 140.0 | 140.95 | 34.013 D | -0.636 C | 27.367 | 1447.3 |
| 141.0 | 142.00 | 34.020 D | -0.631 C | 27.372 | 1447.3 |
| 142.0 | 143.00 | 34.027 D | -0.625 C | 27.378 | 1447.4 |
| 143.0 | 144.00 | 34.033 D | -0.618 C | 27.382 | 1447.5 |
| 144.0 | 145.00 | 34.041 D | -0.611 C | 27.389 | 1447.5 |
| 145.0 | 146.05 | 34.046 D | -0.605 C | 27.393 | 1447.6 |
| 146.0 | 147.00 | 34.056 D | -0.600 C | 27.400 | 1447.6 |
| 147.0 | 148.10 | 34.061 D | -0.594 C | 27.404 | 1447.7 |
| 148.0 | 149.15 | 34.069 D | -0.588 C | 27.410 | 1447.7 |
| 149.0 | 150.20 | 34.078 D | -0.581 C | 27.418 | 1447.8 |
| 150.0 | 151.10 | 34.085 D | -0.574 C | 27.423 | 1447.8 |
| 151.0 | 152.10 | 34.091 D | -0.567 C | 27.427 | 1447.9 |
| 152.0 | 153.10 | 34.099 D | -0.560 C | 27.434 | 1448.0 |
| 153.0 | 154.10 | 34.108 D | -0.555 C | 27.440 | 1448.0 |
| 154.0 | 155.10 | 34.113 D | -0.549 C | 27.444 | 1448.1 |
| 155.0 | 156.15 | 34.120 D | -0.542 C | 27.450 | 1448.1 |
| 156.0 | 157.15 | 34.129 D | -0.534 C | 27.457 | 1448.2 |
| 157.0 | 158.20 | 34.136 D | -0.528 C | 27.462 | 1448.3 |
| 158.0 | 159.25 | 34.144 D | -0.521 C | 27.468 | 1448.3 |
| 159.0 | 160.20 | 34.154 D | -0.514 C | 27.476 | 1448.4 |
| 160.0 | 161.25 | 34.160 D | -0.508 C | 27.481 | 1448.4 |
| 161.0 | 162.20 | 34.168 D | -0.503 C | 27.487 | 1448.5 |
| 162.0 | 163.15 | 34.177 D | -0.494 C | 27.494 | 1448.5 |
| 163.0 | 164.20 | 34.187 D | -0.482 C | 27.502 | 1448.6 |
| 164.0 | 165.25 | 34.196 D | -0.474 C | 27.509 | 1448.7 |
| 165.0 | 166.25 | 34.201 D | -0.469 C | 27.512 | 1448.7 |
| 166.0 | 167.30 | 34.211 D | -0.459 C | 27.519 | 1448.8 |
| 167.0 | 168.30 | 34.223 D | -0.448 C | 27.529 | 1448.9 |
| 168.0 | 169.30 | 34.235 D | -0.437 C | 27.538 | 1449.0 |
| 169.0 | 170.30 | 34.247 D | -0.427 C | 27.548 | 1449.1 |
| 170.0 | 171.25 | 34.262 D | -0.412 C | 27.559 | 1449.2 |
| 171.0 | 172.25 | 34.281 D | -0.391 C | 27.573 | 1449.3 |
| 172.0 | 173.40 | 34.294 D | -0.378 C | 27.583 | 1449.4 |
| 173.0 | 174.35 | 34.309 D | -0.368 C | 27.595 | 1449.5 |
| 174.0 | 175.25 | 34.317 D | -0.360 C | 27.601 | 1449.6 |
| 175.0 | 176.20 | 34.323 D | -0.356 C | 27.606 | 1449.6 |
| 176.0 | 177.45 | 34.327 D | -0.351 C | 27.609 | 1449.7 |
| 177.0 | 178.45 | 34.332 D | -0.345 C | 27.612 | 1449.7 |
| 178.0 | 179.45 | 34.339 D | -0.338 C | 27.617 | 1449.8 |
| 179.0 | 180.50 | 34.349 D | -0.329 C | 27.625 | 1449.8 |
| 180.0 | 181.55 | 34.354 D | -0.323 C | 27.630 | 1449.9 |
| 181.0 | 182.50 | 34.361 D | -0.319 C | 27.635 | 1449.9 |
| 182.0 | 183.50 | 34.367 D | -0.313 C | 27.639 | 1450.0 |
| 183.0 | 184.55 | 34.375 D | -0.303 C | 27.645 | 1450.1 |
| 184.0 | 185.55 | 34.385 D | -0.294 C | 27.653 | 1450.1 |
| 185.0 | 186.60 | 34.387 D | -0.289 C | 27.654 | 1450.2 |
| 186.0 | 187.60 | 34.393 D | -0.282 C | 27.659 | 1450.2 |
| 187.0 | 188.55 | 34.400 D | -0.277 C | 27.664 | 1450.3 |
| 188.0 | 189.45 | 34.405 D | -0.270 C | 27.668 | 1450.3 |
| 189.0 | 190.50 | 34.411 D | -0.265 C | 27.673 | 1450.4 |
| 190.0 | 191.70 | 34.412 D | -0.259 C | 27.673 | 1450.4 |
| 191.0 | 192.45 | 34.418 D | -0.255 C | 27.678 | 1450.5 |
| 192.0 | 193.55 | 34.423 D | -0.251 C | 27.681 | 1450.5 |
| 193.0 | 194.50 | 34.425 D | -0.246 C | 27.683 | 1450.6 |
| 194.0 | 195.70 | 34.431 D | -0.244 C | 27.688 | 1450.6 |
| 195.0 | 196.70 | 34.433 D | -0.238 C | 27.689 | 1450.6 |
| 196.0 | 197.70 | 34.439 D | -0.236 C | 27.694 | 1450.7 |
| 197.0 | 198.55 | 34.441 D | -0.229 C | 27.695 | 1450.7 |
| 198.0 | 199.50 | 34.449 D | -0.224 C | 27.701 | 1450.8 |
| 199.0 | 200.75 | 34.456 D | -0.215 C | 27.706 | 1450.8 |
| 200.0 | 201.85 | 34.463 D | -0.211 C | 27.712 | 1450.9 |
| 201.0 | 202.85 | 34.465 D | -0.205 C | 27.714 | 1450.9 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 202.0 | 203.90 | 34.470 D | -0.200 C | 27.717 | 1451.0 |
| 203.0 | 204.85 | 34.475 D | -0.195 C | 27.720 | 1451.0 |
| 204.0 | 205.85 | 34.480 D | -0.190 C | 27.724 | 1451.1 |
| 205.0 | 206.85 | 34.486 D | -0.183 C | 27.729 | 1451.1 |
| 206.0 | 207.90 | 34.491 D | -0.176 C | 27.733 | 1451.2 |
| 207.0 | 208.90 | 34.496 D | -0.171 C | 27.737 | 1451.2 |
| 208.0 | 209.95 | 34.504 D | -0.166 C | 27.743 | 1451.3 |
| 209.0 | 210.95 | 34.506 D | -0.161 C | 27.744 | 1451.3 |
| 210.0 | 211.95 | 34.508 D | -0.157 C | 27.746 | 1451.4 |
| 211.0 | 212.95 | 34.512 D | -0.153 C | 27.748 | 1451.4 |
| 212.0 | 213.95 | 34.519 D | -0.149 C | 27.754 | 1451.4 |
| 213.0 | 214.95 | 34.521 D | -0.143 C | 27.756 | 1451.5 |
| 214.0 | 215.90 | 34.527 D | -0.138 C | 27.760 | 1451.5 |
| 215.0 | 217.00 | 34.531 D | -0.133 C | 27.763 | 1451.6 |
| 216.0 | 218.00 | 34.534 D | -0.130 C | 27.765 | 1451.6 |
| 217.0 | 219.00 | 34.538 D | -0.128 C | 27.769 | 1451.7 |
| 218.0 | 220.05 | 34.540 D | -0.125 C | 27.770 | 1451.7 |
| 219.0 | 221.05 | 34.542 D | -0.121 C | 27.771 | 1451.7 |
| 220.0 | 222.00 | 34.544 D | -0.120 C | 27.773 | 1451.7 |
| 221.0 | 223.00 | 34.545 D | -0.117 C | 27.774 | 1451.8 |
| 222.0 | 223.90 | 34.548 D | -0.115 C | 27.776 | 1451.8 |
| 223.0 | 225.10 | 34.550 D | -0.113 C | 27.777 | 1451.8 |
| 224.0 | 226.00 | 34.550 D | -0.110 C | 27.778 | 1451.9 |
| 225.0 | 227.20 | 34.554 D | -0.109 C | 27.780 | 1451.9 |
| 226.0 | 228.20 | 34.555 D | -0.108 C | 27.781 | 1451.9 |
| 227.0 | 229.20 | 34.557 D | -0.107 C | 27.783 | 1451.9 |
| 228.0 | 230.20 | 34.556 D | -0.104 C | 27.782 | 1452.0 |
| 229.0 | 231.30 | 34.559 D | -0.103 C | 27.784 | 1452.0 |
| 230.0 | 232.25 | 34.562 D | -0.101 C | 27.786 | 1452.0 |
| 231.0 | 233.25 | 34.564 D | -0.100 C | 27.788 | 1452.1 |
| 232.0 | 234.30 | 34.565 D | -0.098 C | 27.789 | 1452.1 |
| 233.0 | 235.35 | 34.566 D | -0.096 C | 27.789 | 1452.1 |
| 234.0 | 236.15 | 34.567 D | -0.095 C | 27.790 | 1452.1 |
| 235.0 | 237.15 | 34.568 D | -0.094 C | 27.791 | 1452.1 |
| 236.0 | 238.10 | 34.568 D | -0.092 C | 27.791 | 1452.2 |
| 237.0 | 239.10 | 34.570 D | -0.091 C | 27.792 | 1452.2 |
| 238.0 | 240.15 | 34.572 D | -0.090 C | 27.794 | 1452.2 |
| 239.0 | 240.95 | 34.573 D | -0.089 C | 27.795 | 1452.2 |
| 240.0 | 242.20 | 34.574 D | -0.087 C | 27.795 | 1452.3 |
| 241.0 | 242.80 | 34.575 D | -0.085 C | 27.796 | 1452.3 |
| 242.0 | 243.85 | 34.575 D | -0.084 C | 27.796 | 1452.3 |
| 243.0 | 244.95 | 34.577 D | -0.083 C | 27.798 | 1452.3 |
| 244.0 | 245.95 | 34.578 D | -0.082 C | 27.799 | 1452.4 |
| 245.0 | 246.70 | 34.579 D | -0.080 C | 27.799 | 1452.4 |
| 246.0 | 247.70 | 34.580 D | -0.079 C | 27.800 | 1452.4 |
| 247.0 | 248.70 | 34.581 D | -0.078 C | 27.801 | 1452.4 |
| 248.0 | 249.85 | 34.583 D | -0.078 C | 27.802 | 1452.4 |
| 249.0 | 251.00 | 34.583 D | -0.076 C | 27.802 | 1452.5 |
| 250.0 | 251.85 | 34.586 D | -0.076 C | 27.805 | 1452.5 |
| 251.0 | 254.25 | 34.586 D | -0.073 C | 27.805 | 1452.6 |
| 252.0 | 255.35 | 34.590 D | -0.073 C | 27.807 | 1452.6 |
| 253.0 | 256.30 | 34.591 D | -0.072 C | 27.808 | 1452.6 |
| 254.0 | 257.40 | 34.591 D | -0.071 C | 27.809 | 1452.6 |
| 255.0 | 258.30 | 34.594 D | -0.070 C | 27.810 | 1452.6 |
| 256.0 | 259.40 | 34.594 D | -0.068 C | 27.811 | 1452.7 |
| 257.0 | 260.35 | 34.596 D | -0.068 C | 27.812 | 1452.7 |
| 258.0 | 261.45 | 34.596 D | -0.066 C | 27.812 | 1452.7 |
| 259.0 | 262.45 | 34.597 D | -0.065 C | 27.813 | 1452.7 |
| 260.0 | 263.45 | 34.599 D | -0.064 C | 27.814 | 1452.8 |
| 261.0 | 264.50 | 34.600 D | -0.062 C | 27.815 | 1452.8 |
| 262.0 | 265.45 | 34.601 D | -0.062 C | 27.816 | 1452.8 |
| 263.0 | 266.50 | 34.602 D | -0.060 C | 27.817 | 1452.8 |
| 264.0 | 267.60 | 34.604 D | -0.060 C | 27.818 | 1452.9 |
| 265.0 | 268.55 | 34.604 D | -0.058 C | 27.818 | 1452.9 |
| 266.0 | 269.55 | 34.604 D | -0.055 C | 27.818 | 1452.9 |
| 267.0 | 270.55 | 34.605 D | -0.055 C | 27.819 | 1452.9 |
| 268.0 | 271.60 | 34.605 D | -0.056 C | 27.819 | 1452.9 |
| 269.0 | 272.60 | 34.606 D | -0.055 C | 27.819 | 1453.0 |
| 270.0 | 273.55 | 34.608 D | -0.055 C | 27.821 | 1453.0 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 271.0 | 274.60 | 34.608 D | -0.054 C | 27.821 | 1453.0 |
| 272.0 | 275.70 | 34.608 D | -0.053 C | 27.821 | 1453.0 |
| 273.0 | 276.65 | 34.608 D | -0.051 C | 27.821 | 1453.0 |
| 274.0 | 277.60 | 34.609 D | -0.050 C | 27.822 | 1453.1 |
| 275.0 | 278.60 | 34.611 D | -0.050 C | 27.823 | 1453.1 |
| 276.0 | 279.65 | 34.611 D | -0.049 C | 27.823 | 1453.1 |
| 277.0 | 280.65 | 34.611 D | -0.047 C | 27.823 | 1453.1 |
| 278.0 | 281.65 | 34.612 D | -0.047 C | 27.824 | 1453.2 |
| 279.0 | 282.70 | 34.611 D | -0.045 C | 27.823 | 1453.2 |
| 280.0 | 283.75 | 34.612 D | -0.045 C | 27.824 | 1453.2 |
| 281.0 | 284.80 | 34.614 D | -0.045 C | 27.825 | 1453.2 |
| 282.0 | 285.75 | 34.613 D | -0.044 C | 27.824 | 1453.2 |
| 283.0 | 286.80 | 34.615 D | -0.044 C | 27.826 | 1453.3 |
| 284.0 | 287.80 | 34.614 D | -0.043 C | 27.826 | 1453.3 |
| 285.0 | 288.80 | 34.614 D | -0.042 C | 27.826 | 1453.3 |
| 286.0 | 289.80 | 34.615 D | -0.041 C | 27.826 | 1453.3 |
| 287.0 | 290.85 | 34.615 D | -0.041 C | 27.826 | 1453.3 |
| 288.0 | 291.85 | 34.615 D | -0.040 C | 27.827 | 1453.4 |
| 289.0 | 292.90 | 34.615 D | -0.039 C | 27.826 | 1453.4 |
| 290.0 | 293.85 | 34.617 D | -0.040 C | 27.828 | 1453.4 |
| 291.0 | 294.90 | 34.615 D | -0.038 C | 27.826 | 1453.4 |
| 292.0 | 295.95 | 34.616 D | -0.038 C | 27.827 | 1453.4 |
| 293.0 | 296.95 | 34.616 D | -0.036 C | 27.827 | 1453.5 |
| 294.0 | 297.95 | 34.619 D | -0.038 C | 27.829 | 1453.5 |
| 295.0 | 299.00 | 34.618 D | -0.037 C | 27.829 | 1453.5 |
| 296.0 | 299.95 | 34.619 D | -0.038 C | 27.829 | 1453.5 |
| 297.0 | 301.05 | 34.619 D | -0.038 C | 27.830 | 1453.5 |
| 298.0 | 302.05 | 34.620 D | -0.038 C | 27.830 | 1453.5 |
| 299.0 | 303.00 | 34.619 D | -0.036 C | 27.829 | 1453.6 |
| 300.0 | 304.10 | 34.619 D | -0.035 C | 27.829 | 1453.6 |
| 301.0 | 305.10 | 34.620 D | -0.034 C | 27.830 | 1453.6 |
| 302.0 | 306.10 | 34.621 D | -0.033 C | 27.830 | 1453.6 |
| 303.0 | 307.10 | 34.621 D | -0.033 C | 27.830 | 1453.6 |
| 304.0 | 308.10 | 34.621 D | -0.033 C | 27.830 | 1453.7 |
| 305.0 | 309.10 | 34.621 D | -0.033 C | 27.831 | 1453.7 |
| 306.0 | 310.10 | 34.622 D | -0.032 C | 27.831 | 1453.7 |
| 307.0 | 311.10 | 34.622 D | -0.032 C | 27.832 | 1453.7 |
| 308.0 | 312.05 | 34.622 D | -0.031 C | 27.831 | 1453.7 |
| 309.0 | 313.10 | 34.622 D | -0.030 C | 27.831 | 1453.8 |
| 310.0 | 314.15 | 34.623 D | -0.030 C | 27.832 | 1453.8 |
| 311.0 | 315.15 | 34.623 D | -0.029 C | 27.832 | 1453.8 |
| 312.0 | 316.20 | 34.622 D | -0.028 C | 27.831 | 1453.8 |
| 313.0 | 317.20 | 34.624 D | -0.028 C | 27.833 | 1453.8 |
| 314.0 | 318.25 | 34.623 D | -0.027 C | 27.832 | 1453.9 |
| 315.0 | 319.25 | 34.623 D | -0.027 C | 27.832 | 1453.9 |
| 316.0 | 320.25 | 34.623 D | -0.026 C | 27.832 | 1453.9 |
| 317.0 | 321.25 | 34.624 D | -0.026 C | 27.833 | 1453.9 |
| 318.0 | 322.30 | 34.624 D | -0.026 C | 27.833 | 1453.9 |
| 319.0 | 323.30 | 34.624 D | -0.026 C | 27.833 | 1454.0 |
| 320.0 | 324.30 | 34.624 D | -0.025 C | 27.833 | 1454.0 |
| 321.0 | 325.35 | 34.624 D | -0.024 C | 27.833 | 1454.0 |
| 322.0 | 326.35 | 34.625 D | -0.024 C | 27.833 | 1454.0 |
| 323.0 | 327.40 | 34.625 D | -0.024 C | 27.833 | 1454.0 |
| 324.0 | 328.40 | 34.626 D | -0.024 C | 27.834 | 1454.0 |
| 325.0 | 329.40 | 34.625 D | -0.023 C | 27.834 | 1454.1 |
| 326.0 | 330.45 | 34.626 D | -0.022 C | 27.834 | 1454.1 |
| 327.0 | 331.45 | 34.626 D | -0.022 C | 27.834 | 1454.1 |
| 328.0 | 332.40 | 34.626 D | -0.022 C | 27.834 | 1454.1 |
| 329.0 | 333.45 | 34.627 D | -0.022 C | 27.835 | 1454.1 |
| 330.0 | 334.45 | 34.625 D | -0.020 C | 27.834 | 1454.2 |
| 331.0 | 335.45 | 34.627 D | -0.020 C | 27.835 | 1454.2 |
| 332.0 | 336.40 | 34.626 D | -0.019 C | 27.834 | 1454.2 |
| 333.0 | 337.45 | 34.626 D | -0.019 C | 27.834 | 1454.2 |
| 334.0 | 338.50 | 34.627 D | -0.019 C | 27.835 | 1454.2 |
| 335.0 | 339.45 | 34.627 D | -0.019 C | 27.835 | 1454.3 |
| 336.0 | 340.50 | 34.627 D | -0.018 C | 27.835 | 1454.3 |
| 337.0 | 341.50 | 34.627 D | -0.017 C | 27.835 | 1454.3 |
| 338.0 | 342.55 | 34.628 D | -0.018 C | 27.836 | 1454.3 |
| 339.0 | 343.55 | 34.628 D | -0.017 C | 27.835 | 1454.3 |

| DEPTH | PRESS | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| 340.0 | 344.60 | 34.629 | D | -0.017 | C | 27.836 | 1454.3 |
| 341.0 | 345.60 | 34.628 | D | -0.016 | C | 27.835 | 1454.4 |
| 342.0 | 346.60 | 34.629 | D | -0.016 | C | 27.836 | 1454.4 |
| 343.0 | 347.60 | 34.628 | D | -0.015 | C | 27.836 | 1454.4 |
| 344.0 | 348.55 | 34.629 | D | -0.015 | C | 27.836 | 1454.4 |
| 345.0 | 349.60 | 34.629 | D | -0.014 | C | 27.836 | 1454.4 |
| 346.0 | 350.65 | 34.629 | D | -0.014 | C | 27.836 | 1454.5 |
| 347.0 | 351.70 | 34.629 | D | -0.014 | C | 27.836 | 1454.5 |
| 348.0 | 352.70 | 34.631 | D | -0.015 | C | 27.837 | 1454.5 |
| 349.0 | 353.75 | 34.629 | D | -0.014 | C | 27.836 | 1454.5 |
| 350.0 | 354.75 | 34.630 | D | -0.014 | C | 27.837 | 1454.5 |
| 351.0 | 355.80 | 34.630 | D | -0.013 | C | 27.837 | 1454.6 |
| 352.0 | 356.75 | 34.629 | D | -0.012 | C | 27.836 | 1454.6 |
| 353.0 | 357.80 | 34.629 | D | -0.012 | C | 27.836 | 1454.6 |
| 354.0 | 358.75 | 34.630 | D | -0.012 | C | 27.837 | 1454.6 |
| 355.0 | 359.85 | 34.630 | D | -0.012 | C | 27.837 | 1454.6 |
| 356.0 | 360.85 | 34.631 | D | -0.012 | C | 27.837 | 1454.6 |
| 357.0 | 361.90 | 34.631 | D | -0.012 | C | 27.838 | 1454.7 |
| 358.0 | 362.85 | 34.630 | D | -0.011 | C | 27.837 | 1454.7 |
| 359.0 | 363.85 | 34.630 | D | -0.011 | C | 27.837 | 1454.7 |
| 360.0 | 364.90 | 34.631 | D | -0.011 | C | 27.837 | 1454.7 |
| 361.0 | 365.95 | 34.631 | D | -0.011 | C | 27.837 | 1454.7 |
| 362.0 | 366.95 | 34.631 | D | -0.011 | C | 27.837 | 1454.7 |
| 363.0 | 367.90 | 34.630 | D | -0.010 | C | 27.837 | 1454.8 |
| 364.0 | 368.90 | 34.631 | D | -0.011 | C | 27.837 | 1454.8 |
| 365.0 | 369.90 | 34.631 | D | -0.011 | C | 27.838 | 1454.8 |
| 366.0 | 370.95 | 34.631 | D | -0.010 | C | 27.838 | 1454.8 |
| 367.0 | 372.00 | 34.630 | D | -0.009 | C | 27.837 | 1454.8 |
| 368.0 | 373.00 | 34.631 | D | -0.009 | C | 27.837 | 1454.9 |
| 369.0 | 373.95 | 34.631 | D | -0.009 | C | 27.837 | 1454.9 |
| 370.0 | 374.95 | 34.631 | D | -0.009 | C | 27.838 | 1454.9 |
| 371.0 | 375.95 | 34.632 | D | -0.009 | C | 27.838 | 1454.9 |
| 372.0 | 376.95 | 34.631 | D | -0.008 | C | 27.838 | 1454.9 |
| 373.0 | 377.95 | 34.631 | D | -0.008 | C | 27.838 | 1454.9 |
| 374.0 | 379.05 | 34.633 | D | -0.008 | C | 27.839 | 1455.0 |
| 375.0 | 380.05 | 34.631 | D | -0.007 | C | 27.838 | 1455.0 |
| 376.0 | 381.10 | 34.631 | D | -0.007 | C | 27.838 | 1455.0 |
| 377.0 | 382.15 | 34.632 | D | -0.007 | C | 27.838 | 1455.0 |
| 378.0 | 383.15 | 34.631 | D | -0.006 | C | 27.837 | 1455.0 |
| 379.0 | 384.15 | 34.631 | D | -0.006 | C | 27.837 | 1455.1 |
| 380.0 | 385.20 | 34.632 | D | -0.006 | C | 27.838 | 1455.1 |
| 381.0 | 386.20 | 34.632 | D | -0.006 | C | 27.838 | 1455.1 |
| 382.0 | 387.20 | 34.632 | D | -0.005 | C | 27.838 | 1455.1 |
| 383.0 | 388.25 | 34.632 | D | -0.005 | C | 27.838 | 1455.1 |
| 384.0 | 389.25 | 34.632 | D | -0.005 | C | 27.838 | 1455.1 |
| 385.0 | 390.25 | 34.632 | D | -0.005 | C | 27.838 | 1455.2 |
| 386.0 | 391.30 | 34.633 | D | -0.005 | C | 27.839 | 1455.2 |
| 387.0 | 392.30 | 34.631 | D | -0.004 | C | 27.837 | 1455.2 |
| 388.0 | 393.30 | 34.632 | D | -0.004 | C | 27.838 | 1455.2 |
| 389.0 | 394.35 | 34.632 | D | -0.003 | C | 27.838 | 1455.2 |
| 390.0 | 395.30 | 34.633 | D | -0.005 | C | 27.839 | 1455.2 |
| 391.0 | 396.30 | 34.632 | D | -0.004 | C | 27.838 | 1455.3 |
| 392.0 | 397.30 | 34.632 | D | -0.003 | C | 27.838 | 1455.3 |
| 393.0 | 398.30 | 34.632 | D | -0.003 | C | 27.838 | 1455.3 |
| 394.0 | 399.35 | 34.633 | D | -0.003 | C | 27.838 | 1455.3 |
| 395.0 | 400.35 | 34.633 | D | -0.003 | C | 27.839 | 1455.3 |
| 396.0 | 401.40 | 34.633 | D | -0.003 | C | 27.839 | 1455.4 |
| 397.0 | 402.40 | 34.634 | D | -0.003 | C | 27.840 | 1455.4 |
| 398.0 | 403.40 | 34.633 | D | -0.002 | C | 27.839 | 1455.4 |
| 399.0 | 404.40 | 34.633 | D | -0.003 | C | 27.839 | 1455.4 |
| 400.0 | 405.40 | 34.632 | D | -0.001 | C | 27.838 | 1455.4 |
| 401.0 | 406.40 | 34.633 | D | -0.002 | C | 27.839 | 1455.4 |
| 402.0 | 407.45 | 34.634 | D | -0.002 | C | 27.839 | 1455.5 |
| 403.0 | 408.50 | 34.634 | D | -0.002 | C | 27.839 | 1455.5 |
| 404.0 | 409.50 | 34.633 | D | -0.001 | C | 27.839 | 1455.5 |
| 405.0 | 410.45 | 34.633 | D | -0.001 | C | 27.839 | 1455.5 |
| 406.0 | 411.50 | 34.633 | D | -0.001 | C | 27.839 | 1455.5 |
| 407.0 | 412.60 | 34.634 | D | -0.001 | C | 27.839 | 1455.5 |
| 408.0 | 413.60 | 34.635 | D | -0.002 | C | 27.840 | 1455.6 |

| DEPTH | PRESS | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| 409.0 | 414.50 | 34.634 | D | -0.001 | C | 27.839 | 1455.6 |
| 410.0 | 415.60 | 34.634 | D | -0.001 | C | 27.839 | 1455.6 |
| 411.0 | 416.65 | 34.634 | D | -0.001 | C | 27.839 | 1455.6 |
| 412.0 | 417.60 | 34.633 | D | 0.0 | C | 27.839 | 1455.6 |
| 413.0 | 418.65 | 34.633 | D | 0.0 | C | 27.839 | 1455.6 |
| 414.0 | 419.70 | 34.635 | D | -0.001 | C | 27.840 | 1455.7 |
| 415.0 | 420.70 | 34.634 | D | 0.0 | C | 27.839 | 1455.7 |
| 416.0 | 421.70 | 34.634 | D | 0.0 | C | 27.840 | 1455.7 |
| 417.0 | 422.75 | 34.634 | D | 0.0 | C | 27.840 | 1455.7 |
| 418.0 | 423.70 | 34.634 | D | 0.0 | C | 27.840 | 1455.7 |
| 419.0 | 424.80 | 34.634 | D | 0.001 | C | 27.839 | 1455.8 |
| 420.0 | 425.75 | 34.635 | D | 0.0 | C | 27.840 | 1455.8 |
| 421.0 | 426.80 | 34.634 | D | 0.001 | C | 27.840 | 1455.8 |
| 422.0 | 427.80 | 34.634 | D | 0.001 | C | 27.840 | 1455.8 |
| 423.0 | 428.80 | 34.635 | D | 0.001 | C | 27.840 | 1455.8 |
| 424.0 | 429.80 | 34.635 | D | 0.001 | C | 27.840 | 1455.8 |
| 425.0 | 430.80 | 34.635 | D | 0.001 | C | 27.840 | 1455.9 |



EXPERIMENT 1076
TEMPERATURE, C
-2.00 -1.50 -1.00 -0.50 0.00 0.50 1.00
SALINITY 0/00
11.00 15.00 19.00 23.00 27.00 31.00 35.00
SIGMAT
15.00 18.00 21.00 24.00 27.00 30.00 33.00
DEPTH M
1
10
100
1000

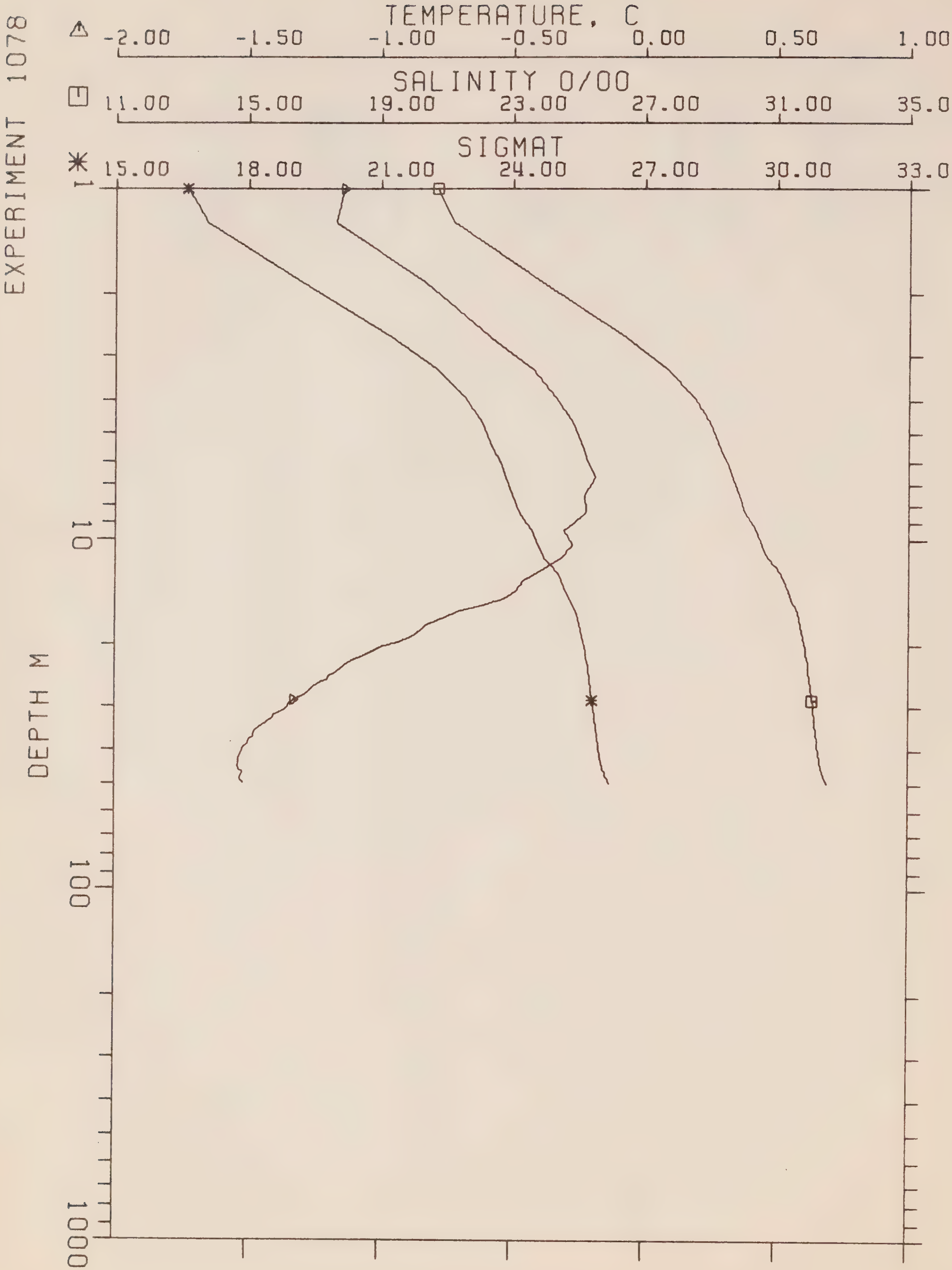
CRUISE D'IBERVILLE FIORD-75 EXPER NO. 1076

LAT N.80-35-40 LONG W.79-28-00 WATER DEPTH 534

DEPTH INCR. DATE 120475 LOCAL TIME 1140

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 1.40 | 21.249 E | -1.175 D | 17.075 | 1424.8 |
| | 2.05 | 22.666 E | -0.981 D | 18.219 | 1427.7 |
| | 2.75 | 25.642 E | -0.685 D | 20.615 | 1433.2 |
| | 3.35 | 27.302 E | -0.489 D | 21.949 | 1436.4 |
| | 4.10 | 28.252 E | -0.368 D | 22.711 | 1438.3 |
| | 4.85 | 28.804 E | -0.297 D | 23.154 | 1439.4 |
| | 5.45 | 29.190 E | -0.250 D | 23.464 | 1440.2 |
| | 6.20 | 29.428 E | -0.227 D | 23.655 | 1440.6 |
| | 6.85 | 29.605 E | -0.207 D | 23.797 | 1441.0 |
| | 7.60 | 29.786 E | -0.204 D | 23.942 | 1441.2 |
| | 8.40 | 29.953 E | -0.227 D | 24.077 | 1441.4 |
| | 9.35 | 30.140 E | -0.216 D | 24.228 | 1441.7 |
| | 9.75 | 30.332 E | -0.309 D | 24.386 | 1441.5 |
| | 10.50 | 30.458 E | -0.277 D | 24.486 | 1441.9 |
| | 11.25 | 30.623 E | -0.289 D | 24.619 | 1442.1 |
| | 11.95 | 30.819 E | -0.335 D | 24.779 | 1442.1 |
| | 12.65 | 31.028 E | -0.385 D | 24.949 | 1442.2 |
| | 13.35 | 31.164 E | -0.425 D | 25.060 | 1442.2 |
| | 14.00 | 31.277 E | -0.473 D | 25.153 | 1442.2 |
| | 14.75 | 31.379 E | -0.502 D | 25.236 | 1442.2 |
| | 15.30 | 31.467 E | -0.554 D | 25.309 | 1442.1 |
| | 16.15 | 31.564 E | -0.628 D | 25.390 | 1441.9 |
| | 16.80 | 31.646 E | -0.716 D | 25.458 | 1441.6 |
| | 17.50 | 31.709 E | -0.789 D | 25.511 | 1441.3 |
| | 18.10 | 31.747 E | -0.841 D | 25.544 | 1441.2 |
| | 18.95 | 31.775 E | -0.857 D | 25.567 | 1441.1 |
| | 19.60 | 31.811 E | -0.899 D | 25.598 | 1441.0 |
| | 20.25 | 31.850 E | -0.954 D | 25.631 | 1440.8 |
| | 21.05 | 31.879 E | -1.009 D | 25.655 | 1440.6 |
| | 21.70 | 31.905 E | -1.059 D | 25.678 | 1440.4 |
| | 22.40 | 31.926 E | -1.092 D | 25.696 | 1440.3 |
| | 23.10 | 31.949 E | -1.123 D | 25.715 | 1440.2 |
| | 23.80 | 31.964 E | -1.147 D | 25.728 | 1440.1 |
| | 24.55 | 31.983 E | -1.174 D | 25.744 | 1440.0 |
| | 25.15 | 31.996 E | -1.195 D | 25.755 | 1440.0 |
| | 25.90 | 32.016 E | -1.211 D | 25.771 | 1439.9 |
| | 26.55 | 32.034 E | -1.238 D | 25.787 | 1439.8 |
| | 27.25 | 32.051 E | -1.263 D | 25.801 | 1439.8 |
| | 28.00 | 32.067 E | -1.284 D | 25.815 | 1439.7 |
| | 28.70 | 32.083 E | -1.313 D | 25.829 | 1439.6 |
| | 29.40 | 32.095 E | -1.334 D | 25.839 | 1439.5 |
| | 30.00 | 32.106 E | -1.350 D | 25.848 | 1439.5 |
| | 30.85 | 32.114 E | -1.358 D | 25.855 | 1439.4 |
| | 31.55 | 32.124 E | -1.379 D | 25.863 | 1439.4 |
| | 32.15 | 32.140 E | -1.399 D | 25.876 | 1439.3 |
| | 32.90 | 32.153 E | -1.416 D | 25.887 | 1439.3 |
| | 33.70 | 32.167 E | -1.427 D | 25.899 | 1439.2 |
| | 34.45 | 32.183 E | -1.446 D | 25.912 | 1439.2 |
| | 35.05 | 32.193 E | -1.459 D | 25.921 | 1439.2 |
| | 35.80 | 32.203 E | -1.470 D | 25.929 | 1439.1 |
| | 36.50 | 32.214 E | -1.479 D | 25.938 | 1439.1 |
| | 37.15 | 32.222 E | -1.487 D | 25.945 | 1439.1 |
| | 37.75 | 32.230 E | -1.496 D | 25.952 | 1439.1 |
| | 38.70 | 32.243 E | -1.498 D | 25.963 | 1439.1 |
| | 39.30 | 32.256 E | -1.511 D | 25.973 | 1439.1 |
| | 40.00 | 32.267 E | -1.519 D | 25.982 | 1439.1 |
| | 40.70 | 32.274 E | -1.523 D | 25.988 | 1439.1 |
| | 41.50 | 32.288 E | -1.526 D | 25.999 | 1439.1 |
| | 42.20 | 32.303 E | -1.532 D | 26.012 | 1439.1 |
| | 42.80 | 32.316 E | -1.535 D | 26.022 | 1439.1 |
| | 43.60 | 32.334 E | -1.533 D | 26.037 | 1439.1 |
| | 44.30 | 32.356 E | -1.534 D | 26.054 | 1439.2 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 45.00 | 32.373 E | -1.538 D | 26.068 | 1439.2 |
| | 45.90 | 32.392 E | -1.527 D | 26.083 | 1439.3 |
| | 46.45 | 32.412 E | -1.526 D | 26.100 | 1439.3 |
| | 47.15 | 32.438 E | -1.521 D | 26.120 | 1439.4 |
| | 47.80 | 32.462 E | -1.526 D | 26.140 | 1439.4 |
| | 48.45 | 32.481 E | -1.526 D | 26.155 | 1439.5 |
| | 49.00 | 32.500 E | -1.524 D | 26.171 | 1439.5 |
| | 49.50 | 32.522 E | -1.525 D | 26.189 | 1439.5 |
| | 49.90 | 32.536 E | -1.522 D | 26.200 | 1439.6 |


EXPERIMENT 1078
TEMPERATURE, C
-2.00 -1.50 -1.00 -0.50 0.00 0.50 1.00
SALINITY 0/00
11.00 15.00 19.00 23.00 27.00 31.00 35.00
SIGMAT
15.00 18.00 21.00 24.00 27.00 30.00 33.00
DEPTH M
1
10
100
1000

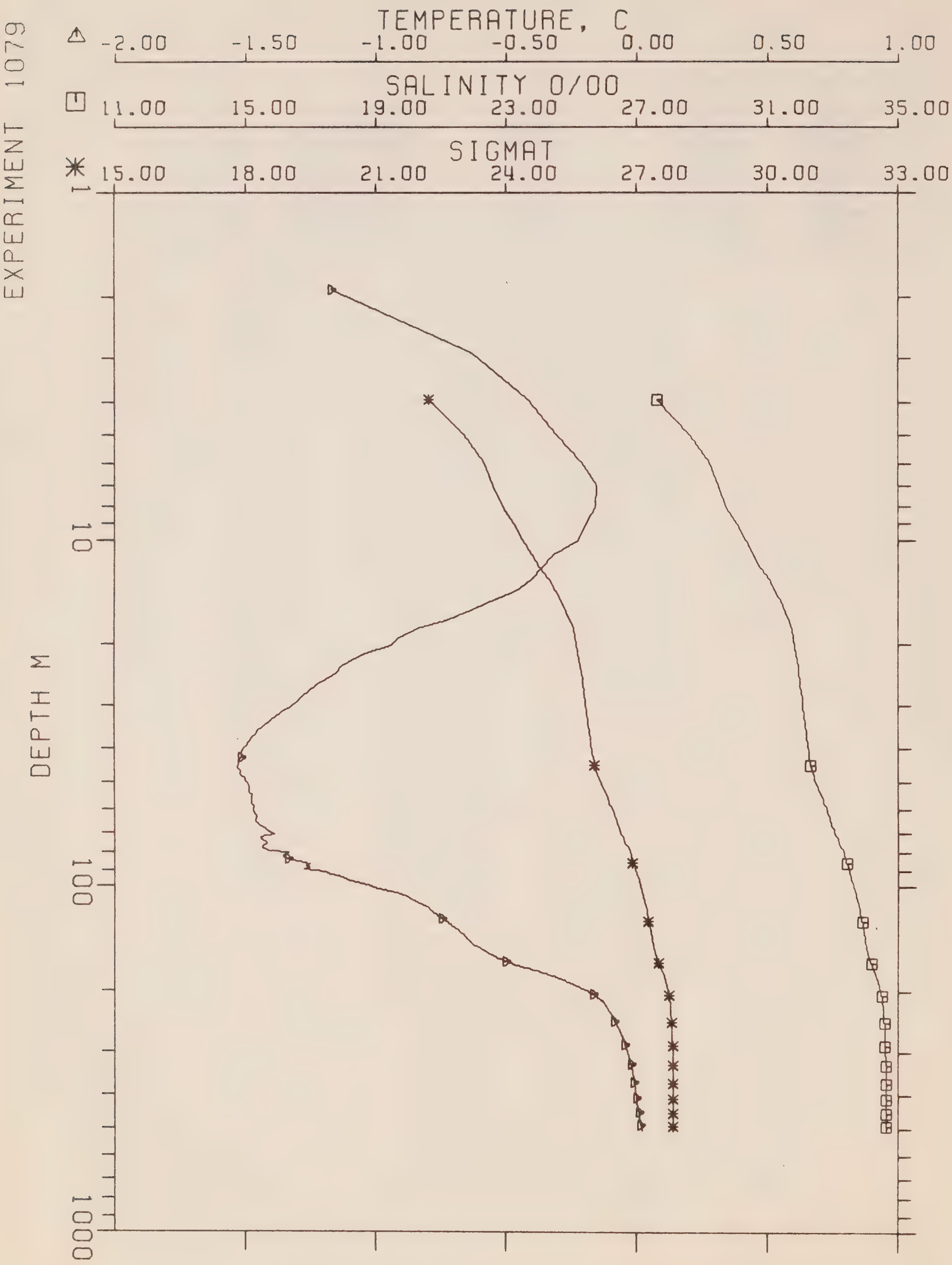
CRUISE D'IBERVILLE FIORD-75 EXPER NO. 1078

LAT N.80-35-40 LONG W.79-28-00 WATER DEPTH 534

DEPTH INCR. DATE 120475 LOCAL TIME 1145

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 0.60 | 20.701 E | -1.138 D | 16.634 | 1424.2 |
| | 1.25 | 21.231 E | -1.171 D | 17.061 | 1424.8 |
| | 1.85 | 23.881 E | -0.836 D | 19.197 | 1430.0 |
| | 2.65 | 26.428 E | -0.584 D | 21.247 | 1434.7 |
| | 3.25 | 27.697 E | -0.424 D | 22.266 | 1437.3 |
| | 3.95 | 28.528 E | -0.333 D | 22.933 | 1438.8 |
| | 4.65 | 28.988 E | -0.269 D | 23.302 | 1439.8 |
| | 5.55 | 29.312 E | -0.232 D | 23.562 | 1440.4 |
| | 6.00 | 29.512 E | -0.216 D | 23.722 | 1440.8 |
| | 6.70 | 29.670 E | -0.187 D | 23.848 | 1441.1 |
| | 7.50 | 29.874 E | -0.224 D | 24.014 | 1441.3 |
| | 8.40 | 30.038 E | -0.220 D | 24.145 | 1441.5 |
| | 9.05 | 30.268 E | -0.271 D | 24.333 | 1441.6 |
| | 9.45 | 30.404 E | -0.307 D | 24.443 | 1441.6 |
| | 10.40 | 30.554 E | -0.271 D | 24.563 | 1442.0 |
| | 11.30 | 30.742 E | -0.315 D | 24.716 | 1442.1 |
| | 11.95 | 30.966 E | -0.367 D | 24.898 | 1442.2 |
| | 12.45 | 31.113 E | -0.407 D | 25.018 | 1442.2 |
| | 13.15 | 31.236 E | -0.455 D | 25.119 | 1442.2 |
| | 14.00 | 31.340 E | -0.485 D | 25.204 | 1442.2 |
| | 14.80 | 31.443 E | -0.532 D | 25.288 | 1442.1 |
| | 15.30 | 31.532 E | -0.596 D | 25.362 | 1442.0 |
| | 16.00 | 31.626 E | -0.694 D | 25.442 | 1441.6 |
| | 16.80 | 31.688 E | -0.763 D | 25.494 | 1441.4 |
| | 17.60 | 31.739 E | -0.826 D | 25.537 | 1441.2 |
| | 18.25 | 31.766 E | -0.845 D | 25.559 | 1441.2 |
| | 18.95 | 31.799 E | -0.879 D | 25.587 | 1441.1 |
| | 19.65 | 31.836 E | -0.931 D | 25.619 | 1440.9 |
| | 20.35 | 31.875 E | -0.998 D | 25.652 | 1440.6 |
| | 21.10 | 31.893 E | -1.040 D | 25.667 | 1440.5 |
| | 21.85 | 31.919 E | -1.079 D | 25.690 | 1440.3 |
| | 22.45 | 31.944 E | -1.113 D | 25.711 | 1440.2 |
| | 23.10 | 31.961 E | -1.139 D | 25.725 | 1440.1 |
| | 23.90 | 31.980 E | -1.165 D | 25.741 | 1440.1 |
| | 24.65 | 31.999 E | -1.190 D | 25.757 | 1440.0 |
| | 25.35 | 32.015 E | -1.200 D | 25.770 | 1440.0 |
| | 25.80 | 32.031 E | -1.228 D | 25.784 | 1439.9 |
| | 26.65 | 32.055 E | -1.255 D | 25.804 | 1439.8 |
| | 27.50 | 32.068 E | -1.277 D | 25.815 | 1439.7 |
| | 28.15 | 32.087 E | -1.304 D | 25.832 | 1439.6 |
| | 28.70 | 32.094 E | -1.326 D | 25.838 | 1439.5 |
| | 29.45 | 32.105 E | -1.342 D | 25.847 | 1439.5 |
| | 30.25 | 32.111 E | -1.352 D | 25.852 | 1439.5 |
| | 31.00 | 32.126 E | -1.371 D | 25.865 | 1439.4 |
| | 31.60 | 32.142 E | -1.394 D | 25.878 | 1439.3 |
| | 32.35 | 32.152 E | -1.407 D | 25.887 | 1439.3 |
| | 33.05 | 32.164 E | -1.420 D | 25.897 | 1439.3 |
| | 33.85 | 32.178 E | -1.440 D | 25.908 | 1439.2 |
| | 34.55 | 32.195 E | -1.453 D | 25.922 | 1439.2 |
| | 35.20 | 32.205 E | -1.464 D | 25.930 | 1439.1 |
| | 36.00 | 32.215 E | -1.474 D | 25.939 | 1439.1 |
| | 36.70 | 32.228 E | -1.477 D | 25.950 | 1439.1 |
| | 37.40 | 32.237 E | -1.490 D | 25.957 | 1439.1 |
| | 38.15 | 32.247 E | -1.497 D | 25.966 | 1439.1 |
| | 38.85 | 32.256 E | -1.504 D | 25.973 | 1439.1 |
| | 39.45 | 32.273 E | -1.515 D | 25.987 | 1439.1 |
| | 40.20 | 32.281 E | -1.517 D | 25.993 | 1439.1 |
| | 40.95 | 32.289 E | -1.521 D | 26.000 | 1439.1 |
| | 41.75 | 32.301 E | -1.527 D | 26.010 | 1439.1 |
| | 42.40 | 32.316 E | -1.528 D | 26.022 | 1439.1 |
| | 43.10 | 32.335 E | -1.529 D | 26.037 | 1439.2 |
| | 43.80 | 32.354 E | -1.528 D | 26.053 | 1439.2 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 44.60 | 32.371 E | -1.533 D | 26.067 | 1439.2 |
| | 45.30 | 32.391 E | -1.529 D | 26.083 | 1439.3 |
| | 45.75 | 32.408 E | -1.522 D | 26.097 | 1439.3 |
| | 46.55 | 32.431 E | -1.515 D | 26.115 | 1439.4 |
| | 47.40 | 32.456 E | -1.519 D | 26.135 | 1439.4 |
| | 47.90 | 32.481 E | -1.523 D | 26.155 | 1439.5 |
| | 48.55 | 32.505 E | -1.523 D | 26.175 | 1439.5 |
| | 49.25 | 32.528 E | -1.520 D | 26.194 | 1439.6 |
| | 49.75 | 32.556 E | -1.513 D | 26.216 | 1439.6 |


EXPERIMENT 1079
TEMPERATURE, C
-2.00 -1.50 -1.00 -0.50 0.00 0.50 1.00
SALINITY 0/00
11.00 15.00 19.00 23.00 27.00 31.00 35.00
SIGMAT
15.00 18.00 21.00 24.00 27.00 30.00 33.00
DEPTH M
1
10
100
1000

CRUISE 15-75-024 D'IBERVILLE FIORD-75 EXPER NO. 1079

LAT N.80-35-40 LONG W.79-28-00 WATER DEPTH 534

DEPTH INCR. DATE 110475 LOCAL TIME 1520

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 2.0 | 1.90 | | -1.170 D | | |
| 3.0 | 2.90 | | -0.628 D | | |
| 4.0 | 3.95 | 27.647 E | -0.414 D | 22.225 | 1437.2 |
| 5.0 | 5.00 | 28.643 E | -0.303 D | 23.025 | 1439.2 |
| 6.0 | 5.95 | 29.222 E | -0.209 D | 23.488 | 1440.4 |
| 7.0 | 7.00 | 29.506 E | -0.148 D | 23.715 | 1441.1 |
| 8.0 | 8.05 | 29.769 E | -0.154 D | 23.927 | 1441.5 |
| 9.0 | 8.95 | 30.084 E | -0.190 D | 24.182 | 1441.7 |
| 10.0 | 10.05 | 30.358 E | -0.221 D | 24.404 | 1442.0 |
| 11.0 | 11.00 | 30.585 E | -0.314 D | 24.589 | 1441.9 |
| 12.0 | 12.05 | 30.801 E | -0.358 D | 24.765 | 1442.0 |
| 13.0 | 13.05 | 31.061 E | -0.400 D | 24.976 | 1442.2 |
| 14.0 | 14.10 | 31.254 E | -0.459 D | 25.133 | 1442.2 |
| 15.0 | 15.05 | 31.424 E | -0.557 D | 25.274 | 1442.0 |
| 16.0 | 16.15 | 31.559 E | -0.645 D | 25.386 | 1441.8 |
| 17.0 | 17.10 | 31.664 E | -0.731 D | 25.474 | 1441.5 |
| 18.0 | 18.10 | 31.750 E | -0.841 D | 25.546 | 1441.2 |
| 19.0 | 19.20 | 31.786 E | -0.908 D | 25.578 | 1440.9 |
| 20.0 | 20.15 | 31.836 E | -0.942 D | 25.619 | 1440.8 |
| 21.0 | 21.20 | 31.887 E | -1.034 D | 25.662 | 1440.5 |
| 22.0 | 22.15 | 31.917 E | -1.088 D | 25.689 | 1440.3 |
| 23.0 | 23.25 | 31.944 E | -1.128 D | 25.711 | 1440.2 |
| 24.0 | 24.20 | 31.966 E | -1.152 D | 25.730 | 1440.1 |
| 25.0 | 25.25 | 31.999 E | -1.192 D | 25.757 | 1440.0 |
| 26.0 | 26.25 | 32.016 E | -1.223 D | 25.772 | 1439.9 |
| 27.0 | 27.25 | 32.047 E | -1.257 D | 25.797 | 1439.8 |
| 28.0 | 28.30 | 32.061 E | -1.278 D | 25.810 | 1439.7 |
| 29.0 | 29.30 | 32.080 E | -1.300 D | 25.825 | 1439.6 |
| 30.0 | 30.30 | 32.099 E | -1.327 D | 25.842 | 1439.6 |
| 31.0 | 31.30 | 32.117 E | -1.360 D | 25.857 | 1439.5 |
| 32.0 | 32.30 | 32.128 E | -1.381 D | 25.867 | 1439.4 |
| 33.0 | 33.35 | 32.153 E | -1.407 D | 25.888 | 1439.3 |
| 34.0 | 34.35 | 32.172 E | -1.430 D | 25.903 | 1439.2 |
| 35.0 | 35.35 | 32.188 E | -1.449 D | 25.917 | 1439.2 |
| 36.0 | 36.35 | 32.198 E | -1.462 D | 25.925 | 1439.2 |
| 37.0 | 37.40 | 32.213 E | -1.477 D | 25.938 | 1439.1 |
| 38.0 | 38.40 | 32.223 E | -1.484 D | 25.946 | 1439.1 |
| 39.0 | 39.40 | 32.239 E | -1.495 D | 25.959 | 1439.1 |
| 40.0 | 40.40 | 32.262 E | -1.511 D | 25.978 | 1439.1 |
| 41.0 | 41.45 | 32.282 E | -1.517 D | 25.994 | 1439.1 |
| 42.0 | 42.45 | 32.300 E | -1.517 D | 26.009 | 1439.1 |
| 43.0 | 43.50 | 32.324 E | -1.525 D | 26.028 | 1439.2 |
| 44.0 | 44.50 | 32.340 E | -1.526 D | 26.041 | 1439.2 |
| 45.0 | 45.50 | 32.363 E | -1.529 D | 26.060 | 1439.2 |
| 46.0 | 46.55 | 32.393 E | -1.517 D | 26.084 | 1439.3 |
| 47.0 | 47.45 | 32.424 E | -1.519 D | 26.110 | 1439.4 |
| 48.0 | 48.50 | 32.452 E | -1.500 D | 26.132 | 1439.5 |
| 49.0 | 49.55 | 32.487 E | -1.499 D | 26.160 | 1439.6 |
| 50.0 | 50.50 | 32.518 E | -1.488 D | 26.185 | 1439.7 |
| 51.0 | 51.55 | 32.554 E | -1.487 D | 26.214 | 1439.8 |
| 52.0 | 52.55 | 32.587 E | -1.484 D | 26.240 | 1439.9 |
| 53.0 | 53.60 | 32.629 E | -1.484 D | 26.274 | 1439.9 |
| 54.0 | 54.55 | 32.668 E | -1.471 D | 26.306 | 1440.1 |
| 55.0 | 55.60 | 32.704 E | -1.475 D | 26.335 | 1440.1 |
| 56.0 | 56.65 | 32.735 E | -1.474 D | 26.360 | 1440.2 |
| 57.0 | 57.65 | 32.762 E | -1.473 D | 26.382 | 1440.3 |
| 58.0 | 58.60 | 32.794 E | -1.465 D | 26.407 | 1440.4 |
| 59.0 | 59.60 | 32.827 E | -1.467 D | 26.435 | 1440.4 |
| 60.0 | 60.65 | 32.857 E | -1.471 D | 26.459 | 1440.4 |
| 61.0 | 61.70 | 32.880 E | -1.463 D | 26.478 | 1440.5 |
| 62.0 | 62.75 | 32.906 E | -1.456 D | 26.498 | 1440.6 |
| 63.0 | 63.75 | 32.936 E | -1.454 D | 26.522 | 1440.7 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 64.0 | 64.75 | 32.958 E | -1.459 D | 26.540 | 1440.7 |
| 65.0 | 65.75 | 32.979 E | -1.448 D | 26.557 | 1440.8 |
| 66.0 | 66.75 | 33.011 E | -1.442 D | 26.583 | 1440.9 |
| 67.0 | 67.80 | 33.031 E | -1.425 D | 26.599 | 1441.0 |
| 68.0 | 68.80 | 33.053 E | -1.415 D | 26.616 | 1441.1 |
| 69.0 | 69.85 | 33.082 E | -1.402 D | 26.639 | 1441.2 |
| 70.0 | 70.80 | 33.099 E | -1.385 D | 26.653 | 1441.4 |
| 71.0 | 71.80 | 33.143 E | -1.439 D | 26.690 | 1441.2 |
| 72.0 | 72.80 | 33.162 E | -1.438 D | 26.705 | 1441.2 |
| 73.0 | 73.85 | 33.183 E | -1.425 D | 26.721 | 1441.3 |
| 74.0 | 74.85 | 33.205 E | -1.415 D | 26.739 | 1441.4 |
| 75.0 | 75.85 | 33.239 E | -1.423 D | 26.767 | 1441.5 |
| 76.0 | 76.90 | 33.289 E | -1.433 D | 26.808 | 1441.5 |
| 77.0 | 77.90 | 33.321 E | -1.425 D | 26.834 | 1441.6 |
| 78.0 | 78.85 | 33.354 E | -1.406 D | 26.860 | 1441.8 |
| 79.0 | 79.90 | 33.348 E | -1.330 D | 26.853 | 1442.1 |
| 80.0 | 80.95 | 33.370 E | -1.352 D | 26.871 | 1442.1 |
| 81.0 | 81.90 | 33.389 E | -1.357 D | 26.887 | 1442.1 |
| 82.0 | 82.95 | 33.396 E | -1.334 D | 26.892 | 1442.2 |
| 83.0 | 84.00 | 33.420 E | -1.322 D | 26.911 | 1442.3 |
| 84.0 | 85.00 | 33.428 E | -1.269 D | 26.916 | 1442.6 |
| 85.0 | 86.05 | 33.452 E | -1.252 D | 26.935 | 1442.7 |
| 86.0 | 87.00 | 33.476 E | -1.266 D | 26.955 | 1442.7 |
| 87.0 | 88.05 | 33.483 E | -1.252 D | 26.960 | 1442.8 |
| 88.0 | 89.00 | 33.510 E | -1.277 D | 26.983 | 1442.7 |
| 89.0 | 90.10 | 33.511 E | -1.227 D | 26.982 | 1443.0 |
| 90.0 | 91.05 | 33.529 E | -1.194 D | 26.996 | 1443.2 |
| 91.0 | 92.10 | 33.547 E | -1.168 D | 27.010 | 1443.4 |
| 92.0 | 93.05 | 33.563 E | -1.146 D | 27.021 | 1443.5 |
| 93.0 | 94.10 | 33.579 E | -1.127 D | 27.034 | 1443.6 |
| 94.0 | 95.15 | 33.597 E | -1.103 D | 27.048 | 1443.8 |
| 95.0 | 96.05 | 33.610 E | -1.094 D | 27.058 | 1443.9 |
| 96.0 | 97.20 | 33.624 E | -1.068 D | 27.069 | 1444.0 |
| 97.0 | 98.20 | 33.638 E | -1.053 D | 27.079 | 1444.1 |
| 98.0 | 99.10 | 33.650 E | -1.026 D | 27.088 | 1444.3 |
| 99.0 | 100.20 | 33.664 D | -1.004 C | 27.098 | 1444.4 |
| 100.0 | 101.20 | 33.678 D | -0.983 C | 27.109 | 1444.6 |
| 101.0 | 102.20 | 33.690 D | -0.964 C | 27.118 | 1444.7 |
| 102.0 | 103.20 | 33.703 D | -0.944 C | 27.128 | 1444.8 |
| 103.0 | 104.20 | 33.712 D | -0.922 C | 27.135 | 1444.9 |
| 104.0 | 105.30 | 33.727 D | -0.906 C | 27.146 | 1445.1 |
| 105.0 | 106.25 | 33.736 D | -0.887 C | 27.153 | 1445.2 |
| 106.0 | 107.35 | 33.749 D | -0.869 C | 27.162 | 1445.3 |
| 107.0 | 108.30 | 33.763 D | -0.861 C | 27.174 | 1445.4 |
| 108.0 | 109.35 | 33.771 D | -0.851 C | 27.180 | 1445.4 |
| 109.0 | 110.35 | 33.781 D | -0.839 C | 27.187 | 1445.5 |
| 110.0 | 111.30 | 33.788 D | -0.829 C | 27.193 | 1445.6 |
| 111.0 | 112.35 | 33.800 D | -0.819 C | 27.202 | 1445.7 |
| 112.0 | 113.40 | 33.813 D | -0.809 C | 27.212 | 1445.8 |
| 113.0 | 114.40 | 33.822 D | -0.799 C | 27.219 | 1445.8 |
| 114.0 | 115.35 | 33.830 D | -0.794 C | 27.225 | 1445.9 |
| 115.0 | 116.40 | 33.835 D | -0.791 C | 27.229 | 1445.9 |
| 116.0 | 117.40 | 33.838 D | -0.786 C | 27.232 | 1446.0 |
| 117.0 | 118.45 | 33.846 D | -0.780 C | 27.238 | 1446.0 |
| 118.0 | 119.50 | 33.853 D | -0.772 C | 27.243 | 1446.1 |
| 119.0 | 120.45 | 33.861 D | -0.764 C | 27.250 | 1446.2 |
| 120.0 | 121.50 | 33.871 D | -0.756 C | 27.257 | 1446.2 |
| 121.0 | 122.55 | 33.878 D | -0.750 C | 27.263 | 1446.3 |
| 122.0 | 123.55 | 33.885 D | -0.743 C | 27.268 | 1446.3 |
| 123.0 | 124.60 | 33.895 D | -0.735 C | 27.275 | 1446.4 |
| 124.0 | 125.50 | 33.903 D | -0.727 C | 27.282 | 1446.5 |
| 125.0 | 126.55 | 33.910 D | -0.722 C | 27.287 | 1446.5 |
| 126.0 | 127.60 | 33.918 D | -0.718 C | 27.294 | 1446.6 |
| 127.0 | 128.60 | 33.924 D | -0.712 C | 27.298 | 1446.6 |
| 128.0 | 129.65 | 33.930 D | -0.708 C | 27.303 | 1446.7 |
| 129.0 | 130.65 | 33.938 D | -0.702 C | 27.309 | 1446.7 |
| 130.0 | 131.65 | 33.945 D | -0.696 C | 27.314 | 1446.8 |
| 131.0 | 132.70 | 33.952 D | -0.687 C | 27.320 | 1446.8 |
| 132.0 | 133.65 | 33.959 D | -0.680 C | 27.325 | 1446.9 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 133.0 | 134.70 | 33.968 D | -0.674 C | 27.332 | 1447.0 |
| 134.0 | 135.75 | 33.974 D | -0.670 C | 27.337 | 1447.0 |
| 135.0 | 136.75 | 33.979 D | -0.666 C | 27.341 | 1447.0 |
| 136.0 | 137.70 | 33.983 D | -0.661 C | 27.344 | 1447.1 |
| 137.0 | 138.75 | 33.990 D | -0.658 C | 27.349 | 1447.1 |
| 138.0 | 139.75 | 33.993 D | -0.654 C | 27.352 | 1447.2 |
| 139.0 | 140.70 | 33.999 D | -0.650 C | 27.356 | 1447.2 |
| 140.0 | 141.70 | 34.005 D | -0.646 C | 27.361 | 1447.2 |
| 141.0 | 142.75 | 34.009 D | -0.641 C | 27.364 | 1447.3 |
| 142.0 | 143.80 | 34.014 D | -0.639 C | 27.368 | 1447.3 |
| 143.0 | 144.80 | 34.018 D | -0.635 C | 27.371 | 1447.4 |
| 144.0 | 145.85 | 34.023 D | -0.631 C | 27.375 | 1447.4 |
| 145.0 | 146.90 | 34.030 D | -0.623 C | 27.380 | 1447.5 |
| 146.0 | 147.85 | 34.037 D | -0.615 C | 27.386 | 1447.5 |
| 147.0 | 148.85 | 34.044 D | -0.609 C | 27.391 | 1447.6 |
| 148.0 | 149.90 | 34.054 D | -0.602 C | 27.399 | 1447.7 |
| 149.0 | 150.95 | 34.060 D | -0.593 C | 27.403 | 1447.7 |
| 150.0 | 151.90 | 34.069 D | -0.587 C | 27.411 | 1447.8 |
| 151.0 | 153.00 | 34.077 D | -0.579 C | 27.416 | 1447.8 |
| 152.0 | 153.95 | 34.085 D | -0.573 C | 27.423 | 1447.9 |
| 153.0 | 154.95 | 34.091 D | -0.568 C | 27.427 | 1447.9 |
| 154.0 | 156.00 | 34.098 D | -0.562 C | 27.433 | 1448.0 |
| 155.0 | 157.00 | 34.106 D | -0.555 C | 27.439 | 1448.1 |
| 156.0 | 158.05 | 34.113 D | -0.548 C | 27.445 | 1448.1 |
| 157.0 | 159.00 | 34.121 D | -0.540 C | 27.451 | 1448.2 |
| 158.0 | 160.00 | 34.129 D | -0.533 C | 27.456 | 1448.2 |
| 159.0 | 161.05 | 34.139 D | -0.526 C | 27.465 | 1448.3 |
| 160.0 | 162.10 | 34.148 D | -0.517 C | 27.472 | 1448.4 |
| 161.0 | 163.15 | 34.155 D | -0.508 C | 27.477 | 1448.5 |
| 162.0 | 164.15 | 34.167 D | -0.499 C | 27.486 | 1448.5 |
| 163.0 | 165.15 | 34.176 D | -0.489 C | 27.493 | 1448.6 |
| 164.0 | 166.15 | 34.188 D | -0.478 C | 27.502 | 1448.7 |
| 165.0 | 167.20 | 34.199 D | -0.469 C | 27.510 | 1448.8 |
| 166.0 | 168.20 | 34.208 D | -0.459 C | 27.517 | 1448.9 |
| 167.0 | 169.20 | 34.219 D | -0.449 C | 27.525 | 1448.9 |
| 168.0 | 170.20 | 34.231 D | -0.438 C | 27.535 | 1449.0 |
| 169.0 | 171.20 | 34.240 D | -0.425 C | 27.542 | 1449.1 |
| 170.0 | 172.20 | 34.255 D | -0.413 C | 27.553 | 1449.2 |
| 171.0 | 173.20 | 34.269 D | -0.401 C | 27.564 | 1449.3 |
| 172.0 | 174.25 | 34.281 D | -0.389 C | 27.573 | 1449.4 |
| 173.0 | 175.30 | 34.295 D | -0.379 C | 27.584 | 1449.4 |
| 174.0 | 176.30 | 34.307 D | -0.367 C | 27.594 | 1449.5 |
| 175.0 | 177.35 | 34.318 D | -0.356 C | 27.601 | 1449.6 |
| 176.0 | 178.35 | 34.328 D | -0.346 C | 27.609 | 1449.7 |
| 177.0 | 179.35 | 34.337 D | -0.335 C | 27.616 | 1449.8 |
| 178.0 | 180.35 | 34.347 D | -0.326 C | 27.624 | 1449.8 |
| 179.0 | 181.35 | 34.355 D | -0.316 C | 27.630 | 1449.9 |
| 180.0 | 182.35 | 34.366 D | -0.304 C | 27.638 | 1450.0 |
| 181.0 | 183.40 | 34.377 D | -0.298 C | 27.646 | 1450.1 |
| 182.0 | 184.45 | 34.381 D | -0.288 C | 27.649 | 1450.1 |
| 183.0 | 185.50 | 34.388 D | -0.281 C | 27.655 | 1450.2 |
| 184.0 | 186.45 | 34.397 D | -0.274 C | 27.662 | 1450.3 |
| 185.0 | 187.45 | 34.402 D | -0.270 C | 27.666 | 1450.3 |
| 186.0 | 188.50 | 34.409 D | -0.264 C | 27.671 | 1450.3 |
| 187.0 | 189.45 | 34.414 D | -0.254 C | 27.675 | 1450.4 |
| 188.0 | 190.45 | 34.422 D | -0.246 C | 27.680 | 1450.5 |
| 189.0 | 191.55 | 34.431 D | -0.239 C | 27.687 | 1450.5 |
| 190.0 | 192.55 | 34.437 D | -0.234 C | 27.692 | 1450.6 |
| 191.0 | 193.55 | 34.442 D | -0.228 C | 27.696 | 1450.6 |
| 192.0 | 194.55 | 34.447 D | -0.221 C | 27.700 | 1450.7 |
| 193.0 | 195.50 | 34.454 D | -0.214 C | 27.705 | 1450.8 |
| 194.0 | 196.60 | 34.461 D | -0.207 C | 27.710 | 1450.8 |
| 195.0 | 197.65 | 34.465 D | -0.201 C | 27.713 | 1450.9 |
| 196.0 | 198.55 | 34.470 D | -0.193 C | 27.717 | 1450.9 |
| 197.0 | 199.65 | 34.476 D | -0.187 C | 27.721 | 1451.0 |
| 198.0 | 200.65 | 34.481 D | -0.184 C | 27.725 | 1451.0 |
| 199.0 | 201.65 | 34.486 D | -0.179 C | 27.729 | 1451.1 |
| 200.0 | 202.70 | 34.491 D | -0.172 C | 27.732 | 1451.1 |
| 201.0 | 203.70 | 34.496 D | -0.168 C | 27.737 | 1451.2 |

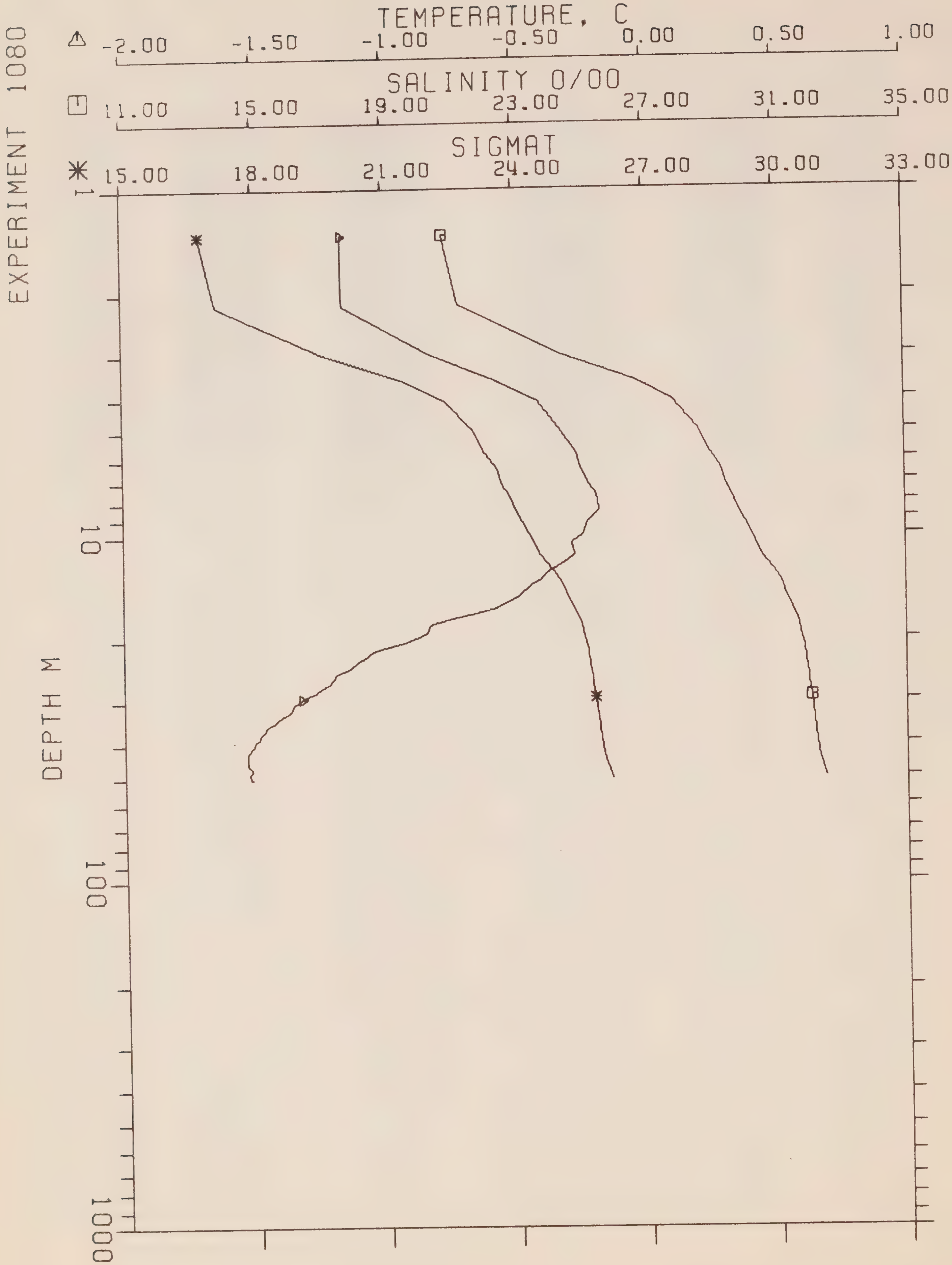
| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 202.0 | 204.75 | 34.499 D | -0.164 C | 27.738 | 1451.2 |
| 203.0 | 205.70 | 34.503 D | -0.162 C | 27.742 | 1451.2 |
| 204.0 | 206.80 | 34.506 D | -0.158 C | 27.744 | 1451.3 |
| 205.0 | 207.80 | 34.510 D | -0.152 C | 27.747 | 1451.3 |
| 206.0 | 208.75 | 34.515 D | -0.149 C | 27.751 | 1451.4 |
| 207.0 | 209.85 | 34.518 D | -0.143 C | 27.753 | 1451.4 |
| 208.0 | 210.80 | 34.522 D | -0.140 C | 27.756 | 1451.4 |
| 209.0 | 211.85 | 34.526 D | -0.138 C | 27.759 | 1451.5 |
| 210.0 | 212.85 | 34.529 D | -0.136 C | 27.761 | 1451.5 |
| 211.0 | 213.80 | 34.531 D | -0.132 C | 27.763 | 1451.5 |
| 212.0 | 214.80 | 34.533 D | -0.130 C | 27.764 | 1451.6 |
| 213.0 | 215.90 | 34.536 D | -0.127 C | 27.767 | 1451.6 |
| 214.0 | 216.85 | 34.537 D | -0.124 C | 27.768 | 1451.6 |
| 215.0 | 217.90 | 34.541 D | -0.122 C | 27.770 | 1451.7 |
| 216.0 | 218.90 | 34.542 D | -0.120 C | 27.771 | 1451.7 |
| 217.0 | 219.95 | 34.546 D | -0.119 C | 27.774 | 1451.7 |
| 218.0 | 220.90 | 34.547 D | -0.117 C | 27.775 | 1451.7 |
| 219.0 | 222.00 | 34.549 D | -0.116 C | 27.777 | 1451.8 |
| 220.0 | 222.95 | 34.549 D | -0.113 C | 27.777 | 1451.8 |
| 221.0 | 224.00 | 34.551 D | -0.112 C | 27.778 | 1451.8 |
| 222.0 | 225.05 | 34.552 D | -0.110 C | 27.779 | 1451.9 |
| 223.0 | 226.00 | 34.553 D | -0.108 C | 27.780 | 1451.9 |
| 224.0 | 227.05 | 34.556 D | -0.108 C | 27.782 | 1451.9 |
| 225.0 | 228.10 | 34.557 D | -0.106 C | 27.783 | 1451.9 |
| 226.0 | 229.05 | 34.558 D | -0.105 C | 27.783 | 1451.9 |
| 227.0 | 230.10 | 34.558 D | -0.103 C | 27.783 | 1452.0 |
| 228.0 | 231.10 | 34.560 D | -0.101 C | 27.785 | 1452.0 |
| 229.0 | 232.20 | 34.562 D | -0.100 C | 27.786 | 1452.0 |
| 230.0 | 233.20 | 34.565 D | -0.099 C | 27.788 | 1452.1 |
| 231.0 | 234.15 | 34.564 D | -0.096 C | 27.788 | 1452.1 |
| 232.0 | 235.15 | 34.567 D | -0.095 C | 27.790 | 1452.1 |
| 233.0 | 236.20 | 34.568 D | -0.094 C | 27.791 | 1452.1 |
| 234.0 | 237.20 | 34.569 D | -0.092 C | 27.792 | 1452.2 |
| 235.0 | 238.25 | 34.571 D | -0.091 C | 27.793 | 1452.2 |
| 236.0 | 239.30 | 34.572 D | -0.090 C | 27.794 | 1452.2 |
| 237.0 | 240.25 | 34.574 D | -0.089 C | 27.796 | 1452.2 |
| 238.0 | 241.30 | 34.574 D | -0.087 C | 27.795 | 1452.3 |
| 239.0 | 242.20 | 34.575 D | -0.086 C | 27.797 | 1452.3 |
| 240.0 | 243.35 | 34.577 D | -0.085 C | 27.798 | 1452.3 |
| 241.0 | 244.25 | 34.579 D | -0.085 C | 27.799 | 1452.3 |
| 242.0 | 245.35 | 34.579 D | -0.083 C | 27.799 | 1452.3 |
| 243.0 | 246.30 | 34.580 D | -0.082 C | 27.800 | 1452.4 |
| 244.0 | 247.35 | 34.582 D | -0.081 C | 27.801 | 1452.4 |
| 245.0 | 248.35 | 34.584 D | -0.080 C | 27.803 | 1452.4 |
| 246.0 | 249.35 | 34.584 D | -0.078 C | 27.803 | 1452.4 |
| 247.0 | 250.40 | 34.586 D | -0.077 C | 27.804 | 1452.5 |
| 248.0 | 251.40 | 34.586 D | -0.076 C | 27.804 | 1452.5 |
| 249.0 | 252.45 | 34.587 D | -0.075 C | 27.806 | 1452.5 |
| 250.0 | 253.50 | 34.588 D | -0.073 C | 27.806 | 1452.5 |
| 251.0 | 254.50 | 34.590 D | -0.072 C | 27.807 | 1452.6 |
| 252.0 | 255.50 | 34.591 D | -0.070 C | 27.809 | 1452.6 |
| 253.0 | 256.45 | 34.592 D | -0.069 C | 27.809 | 1452.6 |
| 254.0 | 257.55 | 34.594 D | -0.068 C | 27.810 | 1452.6 |
| 255.0 | 258.55 | 34.595 D | -0.067 C | 27.812 | 1452.7 |
| 256.0 | 259.55 | 34.596 D | -0.066 C | 27.812 | 1452.7 |
| 257.0 | 260.60 | 34.596 D | -0.065 C | 27.812 | 1452.7 |
| 258.0 | 261.55 | 34.596 D | -0.063 C | 27.812 | 1452.7 |
| 259.0 | 262.65 | 34.598 D | -0.063 C | 27.814 | 1452.7 |
| 260.0 | 263.55 | 34.599 D | -0.062 C | 27.814 | 1452.8 |
| 261.0 | 264.65 | 34.600 D | -0.061 C | 27.815 | 1452.8 |
| 262.0 | 265.60 | 34.600 D | -0.060 C | 27.815 | 1452.8 |
| 263.0 | 266.65 | 34.601 D | -0.060 C | 27.816 | 1452.8 |
| 264.0 | 267.65 | 34.602 D | -0.059 C | 27.817 | 1452.9 |
| 265.0 | 268.70 | 34.603 D | -0.058 C | 27.817 | 1452.9 |
| 266.0 | 269.65 | 34.603 D | -0.057 C | 27.817 | 1452.9 |
| 267.0 | 270.70 | 34.604 D | -0.057 C | 27.819 | 1452.9 |
| 268.0 | 271.70 | 34.604 D | -0.055 C | 27.818 | 1452.9 |
| 269.0 | 272.75 | 34.606 D | -0.055 C | 27.820 | 1453.0 |
| 270.0 | 273.75 | 34.605 D | -0.052 C | 27.819 | 1453.0 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 271.0 | 274.75 | 34.606 D | -0.051 C | 27.820 | 1453.0 |
| 272.0 | 275.80 | 34.609 D | -0.051 C | 27.822 | 1453.0 |
| 273.0 | 276.85 | 34.608 D | -0.050 C | 27.821 | 1453.1 |
| 274.0 | 277.75 | 34.609 D | -0.050 C | 27.822 | 1453.1 |
| 275.0 | 278.85 | 34.610 D | -0.049 C | 27.823 | 1453.1 |
| 276.0 | 279.80 | 34.610 D | -0.049 C | 27.823 | 1453.1 |
| 277.0 | 280.85 | 34.609 D | -0.047 C | 27.822 | 1453.1 |
| 278.0 | 281.90 | 34.610 D | -0.047 C | 27.822 | 1453.2 |
| 279.0 | 282.85 | 34.610 D | -0.046 C | 27.822 | 1453.2 |
| 280.0 | 284.00 | 34.611 D | -0.046 C | 27.824 | 1453.2 |
| 281.0 | 284.95 | 34.612 D | -0.045 C | 27.824 | 1453.2 |
| 282.0 | 285.95 | 34.612 D | -0.044 C | 27.824 | 1453.2 |
| 283.0 | 286.95 | 34.612 D | -0.044 C | 27.824 | 1453.3 |
| 284.0 | 287.95 | 34.613 D | -0.043 C | 27.825 | 1453.3 |
| 285.0 | 289.00 | 34.614 D | -0.042 C | 27.826 | 1453.3 |
| 286.0 | 289.95 | 34.614 D | -0.041 C | 27.825 | 1453.3 |
| 287.0 | 291.05 | 34.614 D | -0.041 C | 27.826 | 1453.3 |
| 288.0 | 292.00 | 34.614 D | -0.040 C | 27.825 | 1453.4 |
| 289.0 | 293.10 | 34.615 D | -0.039 C | 27.826 | 1453.4 |
| 290.0 | 294.00 | 34.616 D | -0.039 C | 27.827 | 1453.4 |
| 291.0 | 295.10 | 34.615 D | -0.038 C | 27.826 | 1453.4 |
| 292.0 | 296.05 | 34.615 D | -0.037 C | 27.826 | 1453.4 |
| 293.0 | 297.05 | 34.617 D | -0.037 C | 27.827 | 1453.5 |
| 294.0 | 298.10 | 34.616 D | -0.036 C | 27.827 | 1453.5 |
| 295.0 | 299.15 | 34.618 D | -0.036 C | 27.828 | 1453.5 |
| 296.0 | 300.15 | 34.618 D | -0.035 C | 27.828 | 1453.5 |
| 297.0 | 301.10 | 34.618 D | -0.034 C | 27.828 | 1453.5 |
| 298.0 | 302.15 | 34.618 D | -0.033 C | 27.828 | 1453.6 |
| 299.0 | 303.20 | 34.619 D | -0.033 C | 27.829 | 1453.6 |
| 300.0 | 304.25 | 34.620 D | -0.033 C | 27.830 | 1453.6 |
| 301.0 | 305.30 | 34.619 D | -0.032 C | 27.829 | 1453.6 |
| 302.0 | 306.30 | 34.619 D | -0.031 C | 27.829 | 1453.6 |
| 303.0 | 307.30 | 34.620 D | -0.031 C | 27.830 | 1453.7 |
| 304.0 | 308.35 | 34.620 D | -0.030 C | 27.830 | 1453.7 |
| 305.0 | 309.35 | 34.622 D | -0.030 C | 27.831 | 1453.7 |
| 306.0 | 310.35 | 34.621 D | -0.029 C | 27.830 | 1453.7 |
| 307.0 | 311.40 | 34.621 D | -0.028 C | 27.830 | 1453.7 |
| 308.0 | 312.40 | 34.622 D | -0.028 C | 27.831 | 1453.8 |
| 309.0 | 313.35 | 34.620 D | -0.027 C | 27.830 | 1453.8 |
| 310.0 | 314.40 | 34.622 D | -0.027 C | 27.832 | 1453.8 |
| 311.0 | 315.40 | 34.623 D | -0.027 C | 27.832 | 1453.8 |
| 312.0 | 316.40 | 34.623 D | -0.026 C | 27.832 | 1453.8 |
| 313.0 | 317.40 | 34.622 D | -0.025 C | 27.831 | 1453.9 |
| 314.0 | 318.40 | 34.623 D | -0.025 C | 27.832 | 1453.9 |
| 315.0 | 319.40 | 34.622 D | -0.024 C | 27.831 | 1453.9 |
| 316.0 | 320.40 | 34.623 D | -0.024 C | 27.832 | 1453.9 |
| 317.0 | 321.40 | 34.623 D | -0.024 C | 27.832 | 1453.9 |
| 318.0 | 322.45 | 34.624 D | -0.023 C | 27.832 | 1453.9 |
| 319.0 | 323.50 | 34.624 D | -0.023 C | 27.833 | 1454.0 |
| 320.0 | 324.55 | 34.624 D | -0.023 C | 27.833 | 1454.0 |
| 321.0 | 325.55 | 34.624 D | -0.022 C | 27.833 | 1454.0 |
| 322.0 | 326.50 | 34.625 D | -0.022 C | 27.834 | 1454.0 |
| 323.0 | 327.50 | 34.624 D | -0.021 C | 27.833 | 1454.0 |
| 324.0 | 328.55 | 34.624 D | -0.020 C | 27.832 | 1454.1 |
| 325.0 | 329.60 | 34.624 D | -0.020 C | 27.833 | 1454.1 |
| 326.0 | 330.60 | 34.624 D | -0.020 C | 27.833 | 1454.1 |
| 327.0 | 331.65 | 34.625 D | -0.020 C | 27.833 | 1454.1 |
| 328.0 | 332.60 | 34.625 D | -0.019 C | 27.833 | 1454.1 |
| 329.0 | 333.70 | 34.625 D | -0.019 C | 27.833 | 1454.2 |
| 330.0 | 334.65 | 34.626 D | -0.019 C | 27.834 | 1454.2 |
| 331.0 | 335.70 | 34.624 D | -0.018 C | 27.833 | 1454.2 |
| 332.0 | 336.75 | 34.626 D | -0.018 C | 27.834 | 1454.2 |
| 333.0 | 337.70 | 34.625 D | -0.017 C | 27.833 | 1454.2 |
| 334.0 | 338.80 | 34.626 D | -0.017 C | 27.834 | 1454.2 |
| 335.0 | 339.70 | 34.625 D | -0.017 C | 27.833 | 1454.3 |
| 336.0 | 340.80 | 34.626 D | -0.017 C | 27.834 | 1454.3 |
| 337.0 | 341.75 | 34.627 D | -0.017 C | 27.835 | 1454.3 |
| 338.0 | 342.75 | 34.626 D | -0.016 C | 27.834 | 1454.3 |
| 339.0 | 343.85 | 34.627 D | -0.016 C | 27.835 | 1454.3 |

| DEPTH | PRESS | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| 340.0 | 344.80 | 34.626 | D | -0.014 | C | 27.834 | 1454.4 |
| 341.0 | 345.80 | 34.628 | D | -0.015 | C | 27.835 | 1454.4 |
| 342.0 | 346.85 | 34.627 | D | -0.015 | C | 27.835 | 1454.4 |
| 343.0 | 347.85 | 34.627 | D | -0.014 | C | 27.835 | 1454.4 |
| 344.0 | 348.85 | 34.627 | D | -0.013 | C | 27.834 | 1454.4 |
| 345.0 | 349.90 | 34.628 | D | -0.014 | C | 27.836 | 1454.4 |
| 346.0 | 350.90 | 34.627 | D | -0.012 | C | 27.834 | 1454.5 |
| 347.0 | 351.90 | 34.627 | D | -0.012 | C | 27.834 | 1454.5 |
| 348.0 | 352.95 | 34.628 | D | -0.012 | C | 27.835 | 1454.5 |
| 349.0 | 354.00 | 34.628 | D | -0.012 | C | 27.835 | 1454.5 |
| 350.0 | 354.95 | 34.628 | D | -0.011 | C | 27.835 | 1454.5 |
| 351.0 | 356.05 | 34.627 | D | -0.010 | C | 27.834 | 1454.6 |
| 352.0 | 357.00 | 34.628 | D | -0.011 | C | 27.835 | 1454.6 |
| 353.0 | 358.00 | 34.629 | D | -0.011 | C | 27.836 | 1454.6 |
| 354.0 | 359.15 | 34.628 | D | -0.010 | C | 27.835 | 1454.6 |
| 355.0 | 360.10 | 34.628 | D | -0.010 | C | 27.835 | 1454.6 |
| 356.0 | 361.05 | 34.629 | D | -0.010 | C | 27.836 | 1454.6 |
| 357.0 | 362.15 | 34.630 | D | -0.010 | C | 27.837 | 1454.7 |
| 358.0 | 363.15 | 34.629 | D | -0.010 | C | 27.836 | 1454.7 |
| 359.0 | 364.15 | 34.629 | D | -0.010 | C | 27.836 | 1454.7 |
| 360.0 | 365.20 | 34.629 | D | -0.009 | C | 27.836 | 1454.7 |
| 361.0 | 366.15 | 34.629 | D | -0.009 | C | 27.836 | 1454.7 |
| 362.0 | 367.20 | 34.630 | D | -0.009 | C | 27.837 | 1454.8 |
| 363.0 | 368.20 | 34.630 | D | -0.009 | C | 27.836 | 1454.8 |
| 364.0 | 369.20 | 34.630 | D | -0.009 | C | 27.837 | 1454.8 |
| 365.0 | 370.20 | 34.628 | D | -0.007 | C | 27.835 | 1454.8 |
| 366.0 | 371.15 | 34.630 | D | -0.008 | C | 27.837 | 1454.8 |
| 367.0 | 372.25 | 34.629 | D | -0.007 | C | 27.836 | 1454.8 |
| 368.0 | 373.25 | 34.630 | D | -0.007 | C | 27.836 | 1454.9 |
| 369.0 | 374.25 | 34.631 | D | -0.008 | C | 27.837 | 1454.9 |
| 370.0 | 375.30 | 34.630 | D | -0.007 | C | 27.836 | 1454.9 |
| 371.0 | 376.25 | 34.630 | D | -0.007 | C | 27.837 | 1454.9 |
| 372.0 | 377.30 | 34.630 | D | -0.007 | C | 27.837 | 1454.9 |
| 373.0 | 378.35 | 34.630 | D | -0.006 | C | 27.837 | 1455.0 |
| 374.0 | 379.30 | 34.631 | D | -0.006 | C | 27.837 | 1455.0 |
| 375.0 | 380.40 | 34.629 | D | -0.005 | C | 27.836 | 1455.0 |
| 376.0 | 381.40 | 34.630 | D | -0.005 | C | 27.836 | 1455.0 |
| 377.0 | 382.40 | 34.630 | D | -0.005 | C | 27.836 | 1455.0 |
| 378.0 | 383.40 | 34.630 | D | -0.004 | C | 27.836 | 1455.0 |
| 379.0 | 384.45 | 34.631 | D | -0.005 | C | 27.837 | 1455.1 |
| 380.0 | 385.45 | 34.630 | D | -0.004 | C | 27.837 | 1455.1 |
| 381.0 | 386.50 | 34.630 | D | -0.003 | C | 27.836 | 1455.1 |
| 382.0 | 387.50 | 34.631 | D | -0.005 | C | 27.838 | 1455.1 |
| 383.0 | 388.50 | 34.631 | D | -0.004 | C | 27.837 | 1455.1 |
| 384.0 | 389.60 | 34.632 | D | -0.004 | C | 27.838 | 1455.2 |
| 385.0 | 390.55 | 34.631 | D | -0.004 | C | 27.837 | 1455.2 |
| 386.0 | 391.50 | 34.631 | D | -0.003 | C | 27.837 | 1455.2 |
| 387.0 | 392.50 | 34.631 | D | -0.003 | C | 27.837 | 1455.2 |
| 388.0 | 393.55 | 34.631 | D | -0.003 | C | 27.837 | 1455.2 |
| 389.0 | 394.55 | 34.631 | D | -0.003 | C | 27.837 | 1455.2 |
| 390.0 | 395.55 | 34.632 | D | -0.004 | C | 27.838 | 1455.2 |
| 391.0 | 396.55 | 34.632 | D | -0.003 | C | 27.838 | 1455.3 |
| 392.0 | 397.55 | 34.632 | D | -0.003 | C | 27.838 | 1455.3 |
| 393.0 | 398.65 | 34.631 | D | -0.002 | C | 27.837 | 1455.3 |
| 394.0 | 399.70 | 34.631 | D | -0.002 | C | 27.837 | 1455.3 |
| 395.0 | 400.65 | 34.631 | D | -0.002 | C | 27.837 | 1455.3 |
| 396.0 | 401.65 | 34.631 | D | -0.001 | C | 27.837 | 1455.4 |
| 397.0 | 402.65 | 34.632 | D | -0.002 | C | 27.838 | 1455.4 |
| 398.0 | 403.70 | 34.632 | D | -0.001 | C | 27.838 | 1455.4 |
| 399.0 | 404.75 | 34.632 | D | -0.001 | C | 27.838 | 1455.4 |
| 400.0 | 405.70 | 34.632 | D | -0.001 | C | 27.838 | 1455.4 |
| 401.0 | 406.75 | 34.631 | D | 0.0 | C | 27.837 | 1455.5 |
| 402.0 | 407.80 | 34.632 | D | -0.001 | C | 27.838 | 1455.5 |
| 403.0 | 408.80 | 34.633 | D | -0.001 | C | 27.839 | 1455.5 |
| 404.0 | 409.85 | 34.631 | D | 0.0 | C | 27.837 | 1455.5 |
| 405.0 | 410.85 | 34.632 | D | 0.0 | C | 27.838 | 1455.5 |
| 406.0 | 411.90 | 34.632 | D | 0.0 | C | 27.838 | 1455.5 |
| 407.0 | 412.90 | 34.632 | D | 0.0 | C | 27.838 | 1455.6 |
| 408.0 | 413.80 | 34.632 | D | 0.001 | C | 27.838 | 1455.6 |

| DEPTH | PRESS | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| 409.0 | 414.90 | 34.633 | D | 0.0 | C | 27.839 | 1455.6 |
| 410.0 | 415.95 | 34.632 | D | 0.001 | C | 27.838 | 1455.6 |
| 411.0 | 416.95 | 34.633 | D | 0.0 | C | 27.839 | 1455.6 |
| 412.0 | 417.90 | 34.633 | D | 0.001 | C | 27.838 | 1455.6 |
| 413.0 | 418.90 | 34.632 | D | 0.001 | C | 27.838 | 1455.7 |
| 414.0 | 419.95 | 34.634 | D | 0.0 | C | 27.839 | 1455.7 |
| 415.0 | 420.90 | 34.634 | D | 0.001 | C | 27.839 | 1455.7 |
| 416.0 | 421.95 | 34.632 | D | 0.002 | C | 27.838 | 1455.7 |
| 417.0 | 423.05 | 34.631 | D | 0.002 | C | 27.837 | 1455.7 |
| 418.0 | 424.05 | 34.633 | D | 0.002 | C | 27.838 | 1455.7 |
| 419.0 | 425.05 | 34.632 | D | 0.002 | C | 27.838 | 1455.8 |
| 420.0 | 426.05 | 34.633 | D | 0.002 | C | 27.838 | 1455.8 |
| 421.0 | 427.15 | 34.632 | D | 0.002 | C | 27.838 | 1455.8 |
| 422.0 | 428.10 | 34.632 | D | 0.003 | C | 27.837 | 1455.8 |
| 423.0 | 429.10 | 34.632 | D | 0.003 | C | 27.838 | 1455.8 |
| 424.0 | 430.20 | 34.632 | D | 0.003 | C | 27.838 | 1455.9 |
| 425.0 | 431.20 | 34.632 | D | 0.003 | C | 27.838 | 1455.9 |
| 426.0 | 432.20 | 34.631 | D | 0.004 | C | 27.837 | 1455.9 |
| 427.0 | 433.20 | 34.634 | D | 0.003 | C | 27.839 | 1455.9 |
| 428.0 | 434.25 | 34.633 | D | 0.004 | C | 27.838 | 1455.9 |
| 429.0 | 435.30 | 34.632 | D | 0.005 | C | 27.838 | 1455.9 |
| 430.0 | 436.30 | 34.633 | D | 0.005 | C | 27.839 | 1456.0 |
| 431.0 | 437.25 | 34.634 | D | 0.004 | C | 27.840 | 1456.0 |
| 432.0 | 438.35 | 34.632 | D | 0.006 | C | 27.838 | 1456.0 |
| 433.0 | 439.30 | 34.632 | D | 0.006 | C | 27.838 | 1456.0 |
| 434.0 | 440.35 | 34.632 | D | 0.007 | C | 27.838 | 1456.0 |
| 435.0 | 441.30 | 34.634 | D | 0.005 | C | 27.839 | 1456.0 |
| 436.0 | 442.30 | 34.633 | D | 0.006 | C | 27.838 | 1456.1 |
| 437.0 | 443.40 | 34.634 | D | 0.006 | C | 27.839 | 1456.1 |
| 438.0 | 444.35 | 34.633 | D | 0.006 | C | 27.838 | 1456.1 |
| 439.0 | 445.30 | 34.634 | D | 0.007 | C | 27.839 | 1456.1 |
| 440.0 | 446.40 | 34.633 | D | 0.008 | C | 27.838 | 1456.1 |
| 441.0 | 447.40 | 34.634 | D | 0.008 | C | 27.839 | 1456.2 |
| 442.0 | 448.40 | 34.633 | D | 0.009 | C | 27.838 | 1456.2 |
| 443.0 | 449.40 | 34.633 | D | 0.009 | C | 27.838 | 1456.2 |
| 444.0 | 450.45 | 34.633 | D | 0.009 | C | 27.839 | 1456.2 |
| 445.0 | 451.50 | 34.633 | D | 0.009 | C | 27.839 | 1456.2 |
| 446.0 | 452.55 | 34.634 | D | 0.009 | C | 27.839 | 1456.2 |
| 447.0 | 453.55 | 34.634 | D | 0.009 | C | 27.839 | 1456.3 |
| 448.0 | 454.50 | 34.634 | D | 0.009 | C | 27.839 | 1456.3 |
| 449.0 | 455.50 | 34.634 | D | 0.009 | C | 27.839 | 1456.3 |
| 450.0 | 456.55 | 34.634 | D | 0.010 | C | 27.839 | 1456.3 |
| 451.0 | 457.60 | 34.635 | D | 0.010 | C | 27.839 | 1456.3 |
| 452.0 | 458.65 | 34.635 | D | 0.010 | C | 27.840 | 1456.4 |
| 453.0 | 459.70 | 34.635 | D | 0.010 | C | 27.839 | 1456.4 |
| 454.0 | 460.70 | 34.634 | D | 0.011 | C | 27.839 | 1456.4 |
| 455.0 | 461.70 | 34.635 | D | 0.010 | C | 27.840 | 1456.4 |
| 456.0 | 462.75 | 34.635 | D | 0.010 | C | 27.840 | 1456.4 |
| 457.0 | 463.75 | 34.634 | D | 0.011 | C | 27.839 | 1456.4 |
| 458.0 | 464.75 | 34.634 | D | 0.011 | C | 27.839 | 1456.5 |
| 459.0 | 465.80 | 34.635 | D | 0.011 | C | 27.840 | 1456.5 |
| 460.0 | 466.75 | 34.636 | D | 0.010 | C | 27.841 | 1456.5 |
| 461.0 | 467.75 | 34.635 | D | 0.011 | C | 27.840 | 1456.5 |
| 462.0 | 468.75 | 34.635 | D | 0.012 | C | 27.840 | 1456.5 |
| 463.0 | 469.75 | 34.636 | D | 0.012 | C | 27.840 | 1456.5 |
| 464.0 | 470.75 | 34.636 | D | 0.012 | C | 27.841 | 1456.6 |
| 465.0 | 471.85 | 34.636 | D | 0.012 | C | 27.841 | 1456.6 |
| 466.0 | 472.80 | 34.635 | D | 0.013 | C | 27.839 | 1456.6 |
| 467.0 | 473.85 | 34.636 | D | 0.014 | C | 27.840 | 1456.6 |
| 468.0 | 474.85 | 34.636 | D | 0.014 | C | 27.840 | 1456.6 |
| 469.0 | 475.75 | 34.636 | D | 0.014 | C | 27.840 | 1456.7 |
| 470.0 | 476.90 | 34.636 | D | 0.014 | C | 27.840 | 1456.7 |
| 471.0 | 477.85 | 34.635 | D | 0.015 | C | 27.839 | 1456.7 |
| 472.0 | 478.95 | 34.636 | D | 0.014 | C | 27.840 | 1456.7 |
| 473.0 | 479.90 | 34.636 | D | 0.014 | C | 27.840 | 1456.7 |
| 474.0 | 481.00 | 34.635 | D | 0.016 | C | 27.839 | 1456.7 |
| 475.0 | 481.95 | 34.635 | D | 0.017 | C | 27.840 | 1456.8 |
| 476.0 | 483.00 | 34.635 | D | 0.017 | C | 27.840 | 1456.8 |
| 477.0 | 483.95 | 34.636 | D | 0.017 | C | 27.840 | 1456.8 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 478.0 | 485.05 | 34.636 D | 0.017 C | 27.840 | 1456.8 |
| 479.0 | 486.10 | 34.636 D | 0.017 C | 27.840 | 1456.8 |
| 480.0 | 487.10 | 34.637 D | 0.016 C | 27.841 | 1456.9 |
| 481.0 | 488.10 | 34.636 D | 0.017 C | 27.840 | 1456.9 |
| 482.0 | 489.15 | 34.636 D | 0.017 C | 27.840 | 1456.9 |
| 483.0 | 490.10 | 34.635 D | 0.018 C | 27.840 | 1456.9 |
| 484.0 | 491.15 | 34.636 D | 0.017 C | 27.841 | 1456.9 |
| 485.0 | 492.15 | 34.635 D | 0.021 C | 27.839 | 1457.0 |
| 486.0 | 493.15 | 34.637 D | 0.021 C | 27.841 | 1457.0 |
| 487.0 | 494.20 | 34.636 D | 0.021 C | 27.840 | 1457.0 |
| 488.0 | 495.15 | 34.637 D | 0.021 C | 27.841 | 1457.0 |
| 489.0 | 496.10 | 34.637 D | 0.021 C | 27.841 | 1457.0 |
| 490.0 | 497.20 | 34.637 D | 0.021 C | 27.841 | 1457.0 |
| 491.0 | 498.15 | 34.637 D | 0.021 C | 27.841 | 1457.1 |
| 492.0 | 499.20 | 34.637 D | 0.021 C | 27.841 | 1457.1 |
| 493.0 | 500.25 | 34.636 D | 0.022 C | 27.840 | 1457.1 |
| 494.0 | 501.20 | 34.636 D | 0.022 C | 27.840 | 1457.1 |
| 495.0 | 502.30 | 34.636 D | 0.022 C | 27.840 | 1457.1 |
| 496.0 | 503.35 | 34.636 D | 0.022 C | 27.840 | 1457.1 |
| 497.0 | 504.25 | 34.636 D | 0.022 C | 27.840 | 1457.2 |
| 498.0 | 505.35 | 34.638 D | 0.021 C | 27.842 | 1457.2 |


EXPERIMENT 1080
TEMPERATURE, C
-2.00 -1.50 -1.00 -0.50 0.00 0.50 1.00
SALINITY 0/00
11.00 15.00 19.00 23.00 27.00 31.00 35.00
SIGMAT
15.00 18.00 21.00 24.00 27.00 30.00 33.00
DEPTH M
1
10
100
1000

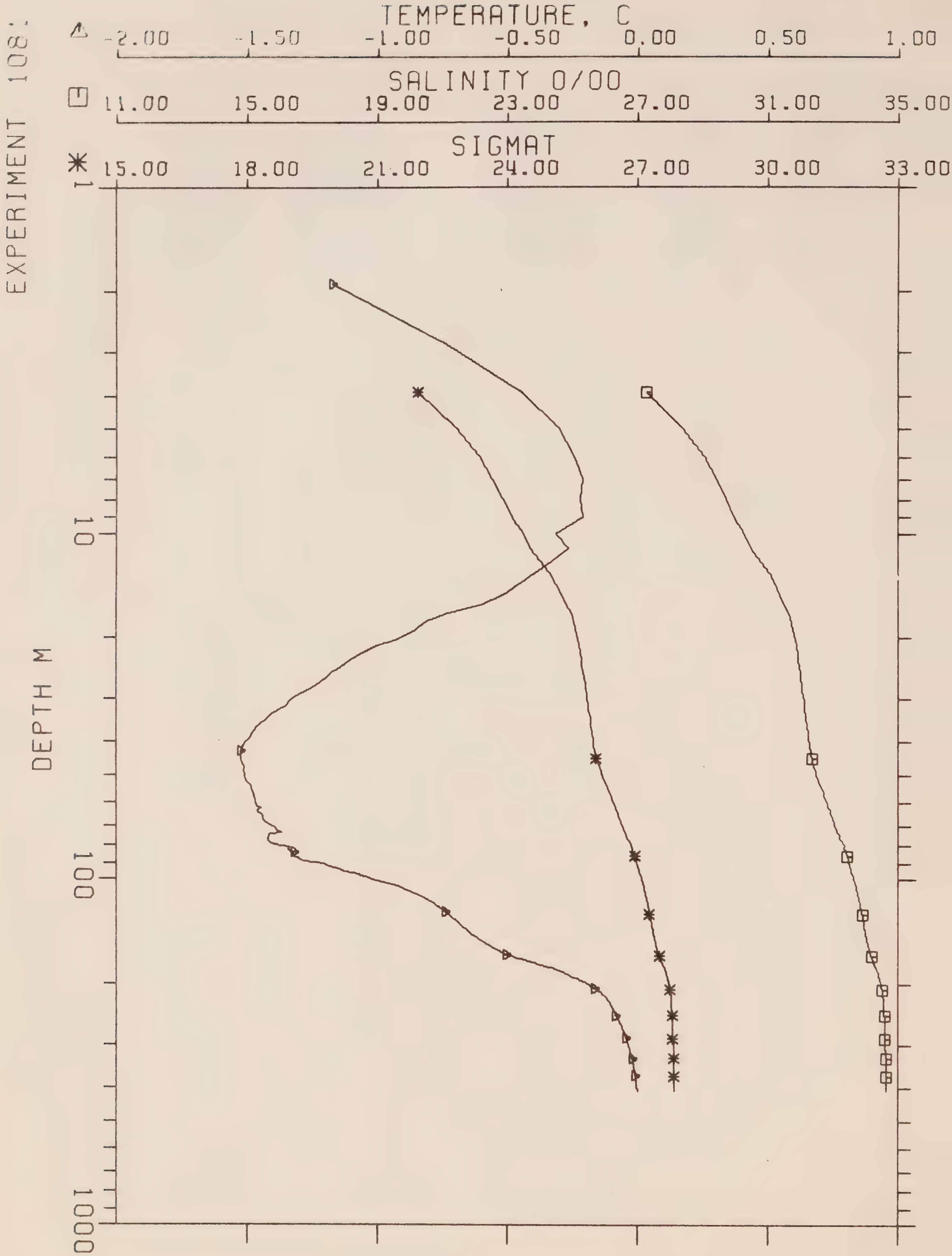
CRUISE D'IBERVILLE FIORD-75 EXPER NO. 1080

LAT N.80-35-40 LONG W.79-28-00 WATER DEPTH 534

DEPTH INCR. DATE 120475 LOCAL TIME 1340

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 1.35 | 20.897 E | -1.154 D | 16.791 | 1424.4 |
| | 2.15 | 21.340 E | -1.157 D | 17.149 | 1425.0 |
| | 3.00 | 24.396 E | -0.822 D | 19.612 | 1430.8 |
| | 3.60 | 26.753 E | -0.559 D | 21.508 | 1435.3 |
| | 4.10 | 27.860 E | -0.408 D | 22.397 | 1437.6 |
| | 4.95 | 28.646 E | -0.326 D | 23.028 | 1439.0 |
| | 5.80 | 29.047 E | -0.260 D | 23.349 | 1439.9 |
| | 6.45 | 29.357 E | -0.245 D | 23.598 | 1440.4 |
| | 7.20 | 29.530 E | -0.208 D | 23.736 | 1440.9 |
| | 7.65 | 29.698 E | -0.186 D | 23.871 | 1441.2 |
| | 8.50 | 29.893 E | -0.173 D | 24.027 | 1441.5 |
| | 9.20 | 30.065 E | -0.221 D | 24.167 | 1441.6 |
| | 9.95 | 30.265 E | -0.236 D | 24.329 | 1441.8 |
| | 10.60 | 30.398 E | -0.280 D | 24.437 | 1441.8 |
| | 11.40 | 30.560 E | -0.272 D | 24.568 | 1442.1 |
| | 12.00 | 30.738 E | -0.310 D | 24.713 | 1442.1 |
| | 12.80 | 30.962 E | -0.369 D | 24.895 | 1442.2 |
| | 13.45 | 31.117 E | -0.402 D | 25.022 | 1442.3 |
| | 14.05 | 31.226 E | -0.439 D | 25.111 | 1442.2 |
| | 15.00 | 31.338 E | -0.485 D | 25.203 | 1442.2 |
| | 15.65 | 31.426 E | -0.529 D | 25.275 | 1442.1 |
| | 16.35 | 31.509 E | -0.584 D | 25.343 | 1442.0 |
| | 16.95 | 31.598 E | -0.672 D | 25.419 | 1441.7 |
| | 17.55 | 31.674 E | -0.761 D | 25.482 | 1441.4 |
| | 18.25 | 31.724 E | -0.823 D | 25.524 | 1441.2 |
| | 19.10 | 31.755 E | -0.834 D | 25.550 | 1441.2 |
| | 19.85 | 31.795 E | -0.881 D | 25.584 | 1441.1 |
| | 20.55 | 31.831 E | -0.937 D | 25.614 | 1440.9 |
| | 21.00 | 31.862 E | -0.999 D | 25.642 | 1440.6 |
| | 21.70 | 31.891 E | -1.047 D | 25.666 | 1440.5 |
| | 22.55 | 31.908 E | -1.080 D | 25.681 | 1440.3 |
| | 23.20 | 31.932 E | -1.106 D | 25.701 | 1440.3 |
| | 24.05 | 31.950 E | -1.132 D | 25.716 | 1440.2 |
| | 24.65 | 31.969 E | -1.159 D | 25.732 | 1440.1 |
| | 25.15 | 31.982 E | -1.183 D | 25.743 | 1440.0 |
| | 26.00 | 31.997 E | -1.202 D | 25.756 | 1439.9 |
| | 26.75 | 32.017 E | -1.215 D | 25.772 | 1439.9 |
| | 27.40 | 32.027 E | -1.239 D | 25.781 | 1439.8 |
| | 28.20 | 32.047 E | -1.265 D | 25.798 | 1439.8 |
| | 28.85 | 32.066 E | -1.287 D | 25.814 | 1439.7 |
| | 29.50 | 32.083 E | -1.320 D | 25.829 | 1439.6 |
| | 30.15 | 32.090 E | -1.335 D | 25.834 | 1439.5 |
| | 30.90 | 32.102 E | -1.354 D | 25.845 | 1439.5 |
| | 31.60 | 32.106 E | -1.359 D | 25.848 | 1439.4 |
| | 32.35 | 32.119 E | -1.373 D | 25.859 | 1439.4 |
| | 33.10 | 32.141 E | -1.395 D | 25.877 | 1439.3 |
| | 33.80 | 32.147 E | -1.414 D | 25.883 | 1439.3 |
| | 34.35 | 32.159 E | -1.425 D | 25.892 | 1439.3 |
| | 35.00 | 32.175 E | -1.446 D | 25.906 | 1439.2 |
| | 35.75 | 32.186 E | -1.455 D | 25.915 | 1439.2 |
| | 36.55 | 32.196 E | -1.466 D | 25.923 | 1439.1 |
| | 37.35 | 32.202 E | -1.474 D | 25.929 | 1439.1 |
| | 38.00 | 32.218 E | -1.482 D | 25.941 | 1439.1 |
| | 38.50 | 32.227 E | -1.487 D | 25.949 | 1439.1 |
| | 39.25 | 32.245 E | -1.500 D | 25.964 | 1439.1 |
| | 40.10 | 32.251 E | -1.506 D | 25.969 | 1439.1 |
| | 40.95 | 32.261 E | -1.514 D | 25.977 | 1439.1 |
| | 41.55 | 32.275 E | -1.521 D | 25.989 | 1439.1 |
| | 42.10 | 32.284 E | -1.524 D | 25.996 | 1439.1 |
| | 42.70 | 32.299 E | -1.530 D | 26.008 | 1439.1 |
| | 43.50 | 32.315 E | -1.531 D | 26.021 | 1439.1 |
| | 44.40 | 32.332 E | -1.530 D | 26.035 | 1439.2 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 44.95 | 32.353 E | -1.530 D | 26.052 | 1439.2 |
| | 45.75 | 32.373 E | -1.529 D | 26.068 | 1439.2 |
| | 46.40 | 32.384 E | -1.524 D | 26.077 | 1439.3 |
| | 47.15 | 32.409 E | -1.514 D | 26.097 | 1439.4 |
| | 47.80 | 32.442 E | -1.517 D | 26.124 | 1439.4 |
| | 48.45 | 32.456 E | -1.521 D | 26.135 | 1439.4 |
| | 49.00 | 32.477 E | -1.524 D | 26.152 | 1439.5 |
| | 49.75 | 32.495 E | -1.522 D | 26.167 | 1439.5 |
| | 50.30 | 32.514 E | -1.520 D | 26.183 | 1439.6 |
| | 50.55 | 32.531 E | -1.514 D | 26.196 | 1439.6 |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TEMPERATURE, C
-2.00 -1.50 -1.00 -0.50 0.00 0.50 1.00
SALINITY 0/00
11.00 15.00 19.00 23.00 27.00 31.00 35.00
SIGMAT
15.00 18.00 21.00 24.00 27.00 30.00 33.00
DEPTH M
10
100
1000

| | | |
|---|---|---|
| CRUISE | D'IBERVILLE FIORD-75 | EXPER NO. 1081 |
| LAT N.80-35-40 | LONG W.79-28-00 | WATER DEPTH 534 |
| DEPTH INCR. | DATE 120475 | LOCAL TIME 1108 |

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 2.0 | 1.90 | | -1.177 D | | |
| 3.0 | 2.85 | | -0.735 D | | |
| 4.0 | 3.90 | 27.271 E | -0.447 D | 21.923 | 1436.6 |
| 5.0 | 4.95 | 28.360 E | -0.306 D | 22.797 | 1438.7 |
| 6.0 | 5.95 | 29.046 E | -0.245 D | 23.348 | 1440.0 |
| 7.0 | 6.95 | 29.424 E | -0.212 D | 23.651 | 1440.7 |
| 8.0 | 7.95 | 29.720 E | -0.221 D | 23.889 | 1441.1 |
| 9.0 | 9.00 | 29.970 E | -0.211 D | 24.091 | 1441.5 |
| 10.0 | 10.05 | 30.283 E | -0.314 D | 24.346 | 1441.5 |
| 11.0 | 11.00 | 30.491 E | -0.264 D | 24.512 | 1442.0 |
| 12.0 | 12.00 | 30.771 E | -0.331 D | 24.740 | 1442.1 |
| 13.0 | 13.05 | 31.033 E | -0.397 D | 24.954 | 1442.2 |
| 14.0 | 14.05 | 31.229 E | -0.458 D | 25.114 | 1442.2 |
| 15.0 | 15.05 | 31.370 E | -0.513 D | 25.230 | 1442.1 |
| 16.0 | 16.10 | 31.527 E | -0.606 D | 25.359 | 1441.9 |
| 17.0 | 17.05 | 31.648 E | -0.728 D | 25.460 | 1441.5 |
| 18.0 | 18.10 | 31.725 E | -0.821 D | 25.525 | 1441.2 |
| 19.0 | 19.05 | 31.764 E | -0.853 D | 25.558 | 1441.1 |
| 20.0 | 20.10 | 31.823 E | -0.919 D | 25.607 | 1440.9 |
| 21.0 | 21.15 | 31.870 E | -0.998 D | 25.648 | 1440.6 |
| 22.0 | 22.20 | 31.904 E | -1.063 D | 25.677 | 1440.4 |
| 23.0 | 23.25 | 31.938 E | -1.106 D | 25.706 | 1440.3 |
| 24.0 | 24.30 | 31.959 E | -1.139 D | 25.724 | 1440.2 |
| 25.0 | 25.25 | 31.989 E | -1.180 D | 25.749 | 1440.0 |
| 26.0 | 26.20 | 32.011 E | -1.200 D | 25.767 | 1440.0 |
| 27.0 | 27.30 | 32.036 E | -1.236 D | 25.789 | 1439.9 |
| 28.0 | 28.30 | 32.059 E | -1.267 D | 25.808 | 1439.8 |
| 29.0 | 29.30 | 32.087 E | -1.310 D | 25.831 | 1439.6 |
| 30.0 | 30.35 | 32.101 E | -1.337 D | 25.844 | 1439.5 |
| 31.0 | 31.35 | 32.112 E | -1.352 D | 25.853 | 1439.5 |
| 32.0 | 32.35 | 32.132 E | -1.384 D | 25.870 | 1439.4 |
| 33.0 | 33.35 | 32.154 E | -1.409 D | 25.888 | 1439.3 |
| 34.0 | 34.35 | 32.177 E | -1.431 D | 25.908 | 1439.3 |
| 35.0 | 35.30 | 32.192 E | -1.448 D | 25.920 | 1439.2 |
| 36.0 | 36.35 | 32.207 E | -1.464 D | 25.932 | 1439.2 |
| 37.0 | 37.40 | 32.222 E | -1.474 D | 25.944 | 1439.2 |
| 38.0 | 38.45 | 32.237 E | -1.487 D | 25.957 | 1439.1 |
| 39.0 | 39.40 | 32.253 E | -1.497 D | 25.970 | 1439.1 |
| 40.0 | 40.40 | 32.269 E | -1.509 D | 25.984 | 1439.1 |
| 41.0 | 41.45 | 32.283 E | -1.516 D | 25.995 | 1439.1 |
| 42.0 | 42.50 | 32.306 E | -1.523 D | 26.014 | 1439.1 |
| 43.0 | 43.50 | 32.329 E | -1.523 D | 26.032 | 1439.2 |
| 44.0 | 44.55 | 32.357 E | -1.523 D | 26.055 | 1439.2 |
| 45.0 | 45.50 | 32.379 E | -1.524 D | 26.073 | 1439.3 |
| 46.0 | 46.55 | 32.405 E | -1.515 D | 26.094 | 1439.4 |
| 47.0 | 47.50 | 32.437 E | -1.510 D | 26.119 | 1439.5 |
| 48.0 | 48.60 | 32.470 E | -1.517 D | 26.147 | 1439.5 |
| 49.0 | 49.65 | 32.499 E | -1.508 D | 26.170 | 1439.6 |
| 50.0 | 50.60 | 32.532 E | -1.508 D | 26.196 | 1439.7 |
| 51.0 | 51.55 | 32.564 E | -1.504 D | 26.223 | 1439.7 |
| 52.0 | 52.65 | 32.597 E | -1.495 D | 26.249 | 1439.8 |
| 53.0 | 53.65 | 32.637 E | -1.485 D | 26.281 | 1440.0 |
| 54.0 | 54.60 | 32.671 E | -1.483 D | 26.308 | 1440.0 |
| 55.0 | 55.75 | 32.708 E | -1.479 D | 26.339 | 1440.1 |
| 56.0 | 56.75 | 32.735 E | -1.476 D | 26.360 | 1440.2 |
| 57.0 | 57.70 | 32.770 E | -1.476 D | 26.388 | 1440.3 |
| 58.0 | 58.75 | 32.796 E | -1.469 D | 26.410 | 1440.3 |
| 59.0 | 59.75 | 32.823 E | -1.472 D | 26.431 | 1440.4 |
| 60.0 | 60.75 | 32.846 E | -1.467 D | 26.450 | 1440.5 |
| 61.0 | 61.75 | 32.878 E | -1.447 D | 26.476 | 1440.6 |
| 62.0 | 62.80 | 32.904 E | -1.460 D | 26.497 | 1440.6 |
| 63.0 | 63.85 | 32.931 E | -1.461 D | 26.519 | 1440.7 |

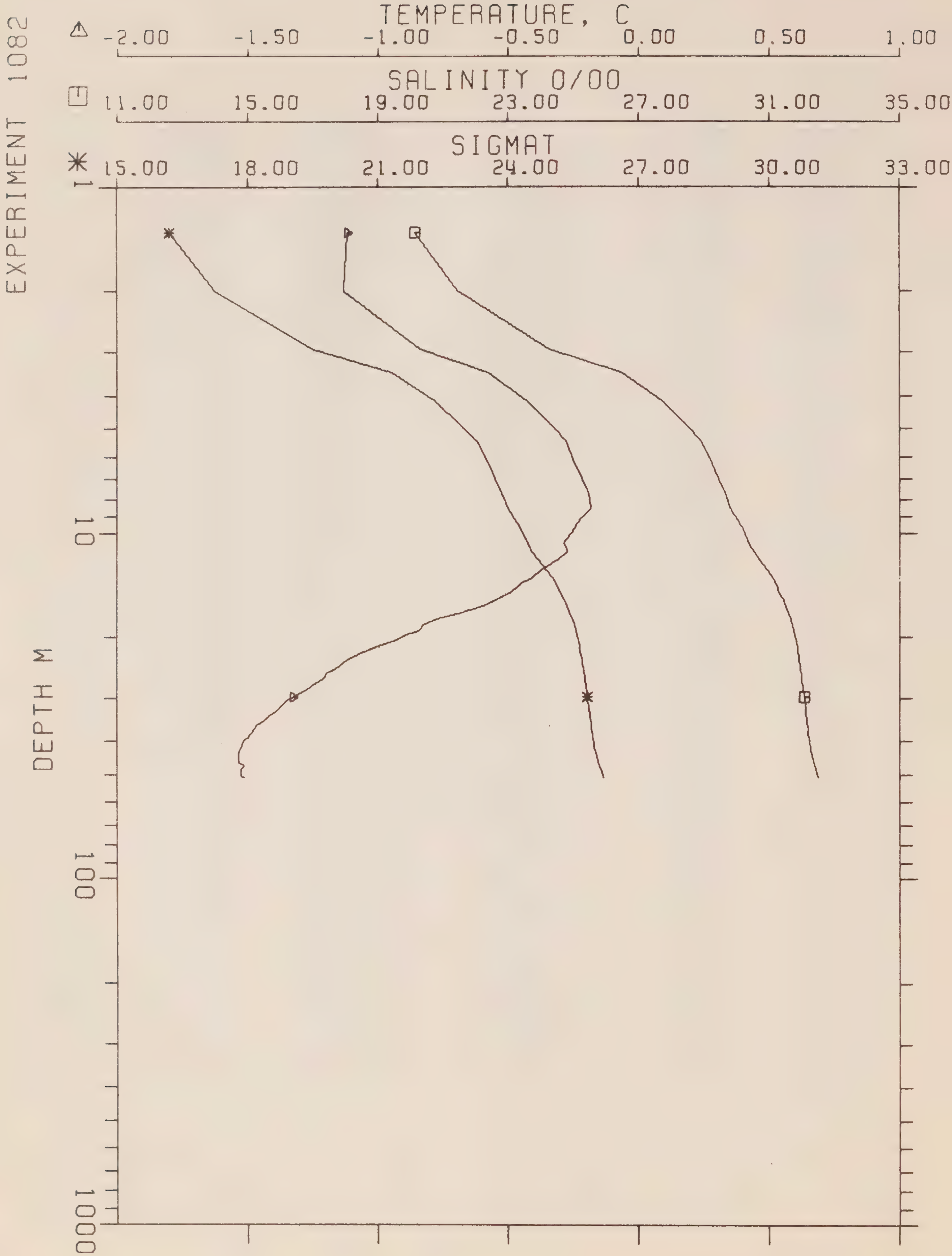
| DEPTH | PRESS | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| 64.0 | 64.85 | 32.955 | E | -1.447 | D | 26.538 | 1440.8 |
| 65.0 | 65.80 | 32.981 | E | -1.438 | D | 26.559 | 1440.9 |
| 66.0 | 66.90 | 33.014 | E | -1.439 | D | 26.585 | 1440.9 |
| 67.0 | 67.85 | 33.034 | E | -1.437 | D | 26.601 | 1441.0 |
| 68.0 | 68.90 | 33.050 | E | -1.421 | D | 26.614 | 1441.1 |
| 69.0 | 69.95 | 33.078 | E | -1.399 | D | 26.636 | 1441.3 |
| 70.0 | 71.00 | 33.107 | E | -1.389 | D | 26.659 | 1441.4 |
| 71.0 | 71.90 | 33.136 | E | -1.391 | D | 26.683 | 1441.4 |
| 72.0 | 72.95 | 33.157 | E | -1.367 | D | 26.700 | 1441.6 |
| 73.0 | 74.00 | 33.188 | E | -1.416 | D | 26.726 | 1441.4 |
| 74.0 | 74.95 | 33.208 | E | -1.415 | D | 26.742 | 1441.4 |
| 75.0 | 76.00 | 33.240 | E | -1.422 | D | 26.768 | 1441.5 |
| 76.0 | 77.05 | 33.277 | E | -1.421 | D | 26.798 | 1441.5 |
| 77.0 | 78.05 | 33.314 | E | -1.409 | D | 26.827 | 1441.7 |
| 78.0 | 79.00 | 33.352 | E | -1.397 | D | 26.858 | 1441.8 |
| 79.0 | 80.10 | 33.333 | E | -1.335 | D | 26.841 | 1442.1 |
| 80.0 | 81.05 | 33.377 | E | -1.345 | D | 26.877 | 1442.1 |
| 81.0 | 82.10 | 33.392 | E | -1.346 | D | 26.889 | 1442.1 |
| 82.0 | 83.05 | 33.399 | E | -1.322 | D | 26.894 | 1442.3 |
| 83.0 | 84.10 | 33.428 | E | -1.323 | D | 26.918 | 1442.3 |
| 84.0 | 85.10 | 33.439 | E | -1.324 | D | 26.926 | 1442.4 |
| 85.0 | 86.15 | 33.460 | E | -1.307 | D | 26.943 | 1442.5 |
| 86.0 | 87.20 | 33.475 | E | -1.304 | D | 26.955 | 1442.5 |
| 87.0 | 88.25 | 33.492 | E | -1.282 | D | 26.968 | 1442.7 |
| 88.0 | 89.20 | 33.486 | E | -1.241 | D | 26.962 | 1442.9 |
| 89.0 | 90.25 | 33.512 | E | -1.205 | D | 26.982 | 1443.1 |
| 90.0 | 91.25 | 33.529 | E | -1.186 | D | 26.996 | 1443.2 |
| 91.0 | 92.25 | 33.553 | E | -1.165 | D | 27.014 | 1443.4 |
| 92.0 | 93.25 | 33.561 | E | -1.148 | D | 27.020 | 1443.5 |
| 93.0 | 94.30 | 33.577 | E | -1.125 | D | 27.032 | 1443.6 |
| 94.0 | 95.30 | 33.591 | E | -1.094 | D | 27.043 | 1443.8 |
| 95.0 | 96.30 | 33.607 | E | -1.070 | D | 27.054 | 1444.0 |
| 96.0 | 97.35 | 33.628 | E | -1.069 | D | 27.072 | 1444.0 |
| 97.0 | 98.30 | 33.640 | E | -1.046 | D | 27.080 | 1444.2 |
| 98.0 | 99.40 | 33.652 | E | -1.019 | D | 27.089 | 1444.3 |
| 99.0 | 100.35 | 33.665 | D | -1.000 | C | 27.099 | 1444.4 |
| 100.0 | 101.40 | 33.681 | D | -0.981 | C | 27.111 | 1444.6 |
| 101.0 | 102.45 | 33.693 | D | -0.961 | C | 27.120 | 1444.7 |
| 102.0 | 103.40 | 33.705 | D | -0.942 | C | 27.129 | 1444.8 |
| 103.0 | 104.45 | 33.715 | D | -0.926 | C | 27.137 | 1444.9 |
| 104.0 | 105.40 | 33.725 | D | -0.908 | C | 27.145 | 1445.0 |
| 105.0 | 106.55 | 33.736 | D | -0.891 | C | 27.152 | 1445.2 |
| 106.0 | 107.50 | 33.746 | D | -0.879 | C | 27.161 | 1445.2 |
| 107.0 | 108.55 | 33.757 | D | -0.867 | C | 27.169 | 1445.3 |
| 108.0 | 109.55 | 33.768 | D | -0.854 | C | 27.178 | 1445.4 |
| 109.0 | 110.55 | 33.777 | D | -0.842 | C | 27.185 | 1445.5 |
| 110.0 | 111.60 | 33.787 | D | -0.832 | C | 27.192 | 1445.6 |
| 111.0 | 112.55 | 33.798 | D | -0.821 | C | 27.200 | 1445.7 |
| 112.0 | 113.65 | 33.808 | D | -0.811 | C | 27.208 | 1445.7 |
| 113.0 | 114.60 | 33.817 | D | -0.804 | C | 27.215 | 1445.8 |
| 114.0 | 115.60 | 33.824 | D | -0.794 | C | 27.220 | 1445.9 |
| 115.0 | 116.65 | 33.835 | D | -0.787 | C | 27.229 | 1445.9 |
| 116.0 | 117.70 | 33.845 | D | -0.780 | C | 27.237 | 1446.0 |
| 117.0 | 118.65 | 33.851 | D | -0.773 | C | 27.242 | 1446.1 |
| 118.0 | 119.70 | 33.858 | D | -0.765 | C | 27.247 | 1446.1 |
| 119.0 | 120.75 | 33.866 | D | -0.757 | C | 27.253 | 1446.2 |
| 120.0 | 121.75 | 33.876 | D | -0.751 | C | 27.261 | 1446.3 |
| 121.0 | 122.80 | 33.881 | D | -0.747 | C | 27.265 | 1446.3 |
| 122.0 | 123.80 | 33.888 | D | -0.742 | C | 27.270 | 1446.3 |
| 123.0 | 124.85 | 33.896 | D | -0.735 | C | 27.276 | 1446.4 |
| 124.0 | 125.80 | 33.902 | D | -0.727 | C | 27.281 | 1446.5 |
| 125.0 | 126.80 | 33.913 | D | -0.722 | C | 27.289 | 1446.5 |
| 126.0 | 127.90 | 33.920 | D | -0.716 | C | 27.295 | 1446.6 |
| 127.0 | 128.90 | 33.926 | D | -0.711 | C | 27.300 | 1446.6 |
| 128.0 | 129.90 | 33.932 | D | -0.705 | C | 27.305 | 1446.7 |
| 129.0 | 130.85 | 33.938 | D | -0.699 | C | 27.309 | 1446.7 |
| 130.0 | 131.90 | 33.942 | D | -0.695 | C | 27.312 | 1446.8 |
| 131.0 | 132.90 | 33.951 | D | -0.690 | C | 27.319 | 1446.8 |
| 132.0 | 134.00 | 33.956 | D | -0.684 | C | 27.323 | 1446.9 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 133.0 | 135.00 | 33.963 D | -0.680 C | 27.328 | 1446.9 |
| 134.0 | 135.90 | 33.969 D | -0.675 C | 27.333 | 1447.0 |
| 135.0 | 137.00 | 33.974 D | -0.670 C | 27.337 | 1447.0 |
| 136.0 | 138.05 | 33.980 D | -0.665 C | 27.342 | 1447.1 |
| 137.0 | 139.00 | 33.986 D | -0.660 C | 27.347 | 1447.1 |
| 138.0 | 140.00 | 33.992 D | -0.655 C | 27.351 | 1447.2 |
| 139.0 | 141.10 | 34.000 D | -0.650 C | 27.357 | 1447.2 |
| 140.0 | 142.05 | 34.005 D | -0.644 C | 27.361 | 1447.3 |
| 141.0 | 143.10 | 34.012 D | -0.640 C | 27.366 | 1447.3 |
| 142.0 | 144.15 | 34.018 D | -0.634 C | 27.371 | 1447.4 |
| 143.0 | 145.15 | 34.023 D | -0.628 C | 27.375 | 1447.4 |
| 144.0 | 146.15 | 34.031 D | -0.620 C | 27.381 | 1447.5 |
| 145.0 | 147.15 | 34.038 D | -0.614 C | 27.387 | 1447.5 |
| 146.0 | 148.20 | 34.045 D | -0.610 C | 27.392 | 1447.6 |
| 147.0 | 149.25 | 34.051 D | -0.604 C | 27.396 | 1447.6 |
| 148.0 | 150.25 | 34.057 D | -0.598 C | 27.401 | 1447.7 |
| 149.0 | 151.30 | 34.063 D | -0.592 C | 27.406 | 1447.7 |
| 150.0 | 152.25 | 34.071 D | -0.583 C | 27.412 | 1447.8 |
| 151.0 | 153.35 | 34.082 D | -0.577 C | 27.421 | 1447.9 |
| 152.0 | 154.30 | 34.089 D | -0.572 C | 27.426 | 1447.9 |
| 153.0 | 155.30 | 34.093 D | -0.566 C | 27.429 | 1448.0 |
| 154.0 | 156.35 | 34.100 D | -0.558 C | 27.435 | 1448.0 |
| 155.0 | 157.40 | 34.110 D | -0.552 C | 27.442 | 1448.1 |
| 156.0 | 158.40 | 34.116 D | -0.545 C | 27.447 | 1448.1 |
| 157.0 | 159.35 | 34.125 D | -0.539 C | 27.453 | 1448.2 |
| 158.0 | 160.35 | 34.132 D | -0.532 C | 27.459 | 1448.3 |
| 159.0 | 161.40 | 34.136 D | -0.524 C | 27.462 | 1448.3 |
| 160.0 | 162.40 | 34.147 D | -0.518 C | 27.470 | 1448.4 |
| 161.0 | 163.40 | 34.152 D | -0.513 C | 27.474 | 1448.4 |
| 162.0 | 164.40 | 34.158 D | -0.504 C | 27.479 | 1448.5 |
| 163.0 | 165.50 | 34.168 D | -0.491 C | 27.487 | 1448.6 |
| 164.0 | 166.50 | 34.180 D | -0.479 C | 27.496 | 1448.7 |
| 165.0 | 167.50 | 34.193 D | -0.470 C | 27.506 | 1448.8 |
| 166.0 | 168.50 | 34.201 D | -0.460 C | 27.512 | 1448.8 |
| 167.0 | 169.55 | 34.216 D | -0.448 C | 27.523 | 1448.9 |
| 168.0 | 170.65 | 34.229 D | -0.435 C | 27.533 | 1449.0 |
| 169.0 | 171.60 | 34.241 D | -0.422 C | 27.542 | 1449.1 |
| 170.0 | 172.60 | 34.255 D | -0.407 C | 27.553 | 1449.2 |
| 171.0 | 173.55 | 34.268 D | -0.397 C | 27.563 | 1449.3 |
| 172.0 | 174.60 | 34.276 D | -0.385 C | 27.569 | 1449.4 |
| 173.0 | 175.60 | 34.287 D | -0.373 C | 27.577 | 1449.5 |
| 174.0 | 176.60 | 34.296 D | -0.363 C | 27.585 | 1449.5 |
| 175.0 | 177.65 | 34.313 D | -0.354 C | 27.597 | 1449.6 |
| 176.0 | 178.70 | 34.325 D | -0.341 C | 27.606 | 1449.7 |
| 177.0 | 179.70 | 34.339 D | -0.328 C | 27.617 | 1449.8 |
| 178.0 | 180.70 | 34.353 D | -0.316 C | 27.628 | 1449.9 |
| 179.0 | 181.80 | 34.363 D | -0.307 C | 27.635 | 1450.0 |
| 180.0 | 182.75 | 34.372 D | -0.300 C | 27.643 | 1450.0 |
| 181.0 | 183.80 | 34.380 D | -0.294 C | 27.649 | 1450.1 |
| 182.0 | 184.80 | 34.388 D | -0.286 C | 27.655 | 1450.2 |
| 183.0 | 185.80 | 34.394 D | -0.281 C | 27.660 | 1450.2 |
| 184.0 | 186.85 | 34.399 D | -0.274 C | 27.664 | 1450.3 |
| 185.0 | 187.85 | 34.405 D | -0.267 C | 27.668 | 1450.3 |
| 186.0 | 188.95 | 34.411 D | -0.261 C | 27.672 | 1450.4 |
| 187.0 | 189.90 | 34.419 D | -0.255 C | 27.678 | 1450.4 |
| 188.0 | 190.90 | 34.423 D | -0.248 C | 27.681 | 1450.5 |
| 189.0 | 191.95 | 34.430 D | -0.240 C | 27.687 | 1450.5 |
| 190.0 | 192.95 | 34.438 D | -0.232 C | 27.692 | 1450.6 |
| 191.0 | 194.00 | 34.446 D | -0.225 C | 27.699 | 1450.7 |
| 192.0 | 194.95 | 34.451 D | -0.220 C | 27.703 | 1450.7 |
| 193.0 | 196.00 | 34.457 D | -0.213 C | 27.707 | 1450.8 |
| 194.0 | 197.10 | 34.463 D | -0.208 C | 27.711 | 1450.8 |
| 195.0 | 198.05 | 34.468 D | -0.201 C | 27.716 | 1450.9 |
| 196.0 | 199.10 | 34.475 D | -0.195 C | 27.721 | 1450.9 |
| 197.0 | 200.10 | 34.479 D | -0.190 C | 27.724 | 1451.0 |
| 198.0 | 201.05 | 34.483 D | -0.185 C | 27.727 | 1451.0 |
| 199.0 | 202.10 | 34.487 D | -0.180 C | 27.730 | 1451.1 |
| 200.0 | 203.10 | 34.492 D | -0.175 C | 27.733 | 1451.1 |
| 201.0 | 204.20 | 34.498 D | -0.169 C | 27.738 | 1451.2 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| 202.0 | 205.15 | 34.502 D | -0.164 C | 27.741 | 1451.2 |
| 203.0 | 206.20 | 34.505 D | -0.159 C | 27.743 | 1451.3 |
| 204.0 | 207.20 | 34.510 D | -0.156 C | 27.747 | 1451.3 |
| 205.0 | 208.25 | 34.511 D | -0.152 C | 27.747 | 1451.3 |
| 206.0 | 209.25 | 34.515 D | -0.150 C | 27.751 | 1451.4 |
| 207.0 | 210.20 | 34.519 D | -0.146 C | 27.754 | 1451.4 |
| 208.0 | 211.25 | 34.523 D | -0.141 C | 27.757 | 1451.4 |
| 209.0 | 212.35 | 34.525 D | -0.138 C | 27.758 | 1451.5 |
| 210.0 | 213.30 | 34.528 D | -0.136 C | 27.761 | 1451.5 |
| 211.0 | 214.35 | 34.531 D | -0.133 C | 27.763 | 1451.5 |
| 212.0 | 215.35 | 34.534 D | -0.130 C | 27.765 | 1451.6 |
| 213.0 | 216.35 | 34.538 D | -0.126 C | 27.768 | 1451.6 |
| 214.0 | 217.40 | 34.540 D | -0.124 C | 27.770 | 1451.6 |
| 215.0 | 218.45 | 34.542 D | -0.122 C | 27.771 | 1451.7 |
| 216.0 | 219.40 | 34.544 D | -0.121 C | 27.773 | 1451.7 |
| 217.0 | 220.50 | 34.544 D | -0.118 C | 27.772 | 1451.7 |
| 218.0 | 221.50 | 34.546 D | -0.117 C | 27.774 | 1451.8 |
| 219.0 | 222.50 | 34.547 D | -0.115 C | 27.775 | 1451.8 |
| 220.0 | 223.45 | 34.550 D | -0.113 C | 27.778 | 1451.8 |
| 221.0 | 224.50 | 34.552 D | -0.111 C | 27.779 | 1451.8 |
| 222.0 | 225.45 | 34.554 D | -0.110 C | 27.780 | 1451.9 |
| 223.0 | 226.50 | 34.554 D | -0.107 C | 27.781 | 1451.9 |
| 224.0 | 227.60 | 34.556 D | -0.105 C | 27.782 | 1451.9 |
| 225.0 | 228.60 | 34.559 D | -0.104 C | 27.784 | 1451.9 |
| 226.0 | 229.60 | 34.560 D | -0.103 C | 27.785 | 1452.0 |
| 227.0 | 230.60 | 34.561 D | -0.101 C | 27.785 | 1452.0 |
| 228.0 | 231.60 | 34.562 D | -0.099 C | 27.786 | 1452.0 |
| 229.0 | 232.60 | 34.564 D | -0.099 C | 27.788 | 1452.0 |
| 230.0 | 233.65 | 34.565 D | -0.098 C | 27.789 | 1452.1 |
| 231.0 | 234.70 | 34.565 D | -0.096 C | 27.789 | 1452.1 |
| 232.0 | 235.70 | 34.567 D | -0.095 C | 27.790 | 1452.1 |
| 233.0 | 236.75 | 34.568 D | -0.094 C | 27.791 | 1452.1 |
| 234.0 | 237.75 | 34.568 D | -0.092 C | 27.791 | 1452.2 |
| 235.0 | 238.70 | 34.571 D | -0.091 C | 27.793 | 1452.2 |
| 236.0 | 239.75 | 34.571 D | -0.090 C | 27.793 | 1452.2 |
| 237.0 | 240.80 | 34.573 D | -0.089 C | 27.794 | 1452.2 |
| 238.0 | 241.80 | 34.574 D | -0.087 C | 27.795 | 1452.3 |
| 239.0 | 242.85 | 34.575 D | -0.086 C | 27.796 | 1452.3 |
| 240.0 | 243.80 | 34.577 D | -0.085 C | 27.797 | 1452.3 |
| 241.0 | 244.90 | 34.577 D | -0.083 C | 27.798 | 1452.3 |
| 242.0 | 245.85 | 34.580 D | -0.083 C | 27.800 | 1452.4 |
| 243.0 | 246.90 | 34.580 D | -0.081 C | 27.800 | 1452.4 |
| 244.0 | 247.95 | 34.583 D | -0.081 C | 27.802 | 1452.4 |
| 245.0 | 248.90 | 34.583 D | -0.079 C | 27.802 | 1452.4 |
| 246.0 | 249.95 | 34.584 D | -0.078 C | 27.803 | 1452.5 |
| 247.0 | 250.95 | 34.585 D | -0.077 C | 27.804 | 1452.5 |
| 248.0 | 251.95 | 34.586 D | -0.075 C | 27.804 | 1452.5 |
| 249.0 | 252.95 | 34.587 D | -0.074 C | 27.805 | 1452.5 |
| 250.0 | 254.05 | 34.589 D | -0.074 C | 27.807 | 1452.5 |
| 251.0 | 255.05 | 34.590 D | -0.072 C | 27.808 | 1452.6 |
| 252.0 | 256.05 | 34.591 D | -0.071 C | 27.808 | 1452.6 |
| 253.0 | 257.00 | 34.592 D | -0.070 C | 27.809 | 1452.6 |
| 254.0 | 258.05 | 34.596 D | -0.070 C | 27.812 | 1452.6 |
| 255.0 | 259.10 | 34.595 D | -0.068 C | 27.812 | 1452.7 |
| 256.0 | 260.15 | 34.597 D | -0.068 C | 27.813 | 1452.7 |
| 257.0 | 261.10 | 34.597 D | -0.066 C | 27.813 | 1452.7 |
| 258.0 | 262.15 | 34.599 D | -0.065 C | 27.814 | 1452.7 |
| 259.0 | 263.15 | 34.599 D | -0.064 C | 27.814 | 1452.8 |
| 260.0 | 264.20 | 34.599 D | -0.062 C | 27.814 | 1452.8 |
| 261.0 | 265.20 | 34.600 D | -0.062 C | 27.815 | 1452.8 |
| 262.0 | 266.20 | 34.600 D | -0.060 C | 27.815 | 1452.8 |
| 263.0 | 267.25 | 34.601 D | -0.060 C | 27.816 | 1452.8 |
| 264.0 | 268.30 | 34.600 D | -0.059 C | 27.815 | 1452.9 |
| 265.0 | 269.30 | 34.602 D | -0.059 C | 27.817 | 1452.9 |
| 266.0 | 270.25 | 34.604 D | -0.058 C | 27.818 | 1452.9 |
| 267.0 | 271.35 | 34.604 D | -0.057 C | 27.818 | 1452.9 |
| 268.0 | 272.35 | 34.604 D | -0.055 C | 27.818 | 1453.0 |
| 269.0 | 273.40 | 34.606 D | -0.055 C | 27.819 | 1453.0 |
| 270.0 | 274.35 | 34.606 D | -0.053 C | 27.819 | 1453.0 |

| DEPTH | PRESS | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| 271.0 | 275.35 | 34.605 | D | -0.052 | C | 27.819 | 1453.0 |
| 272.0 | 276.40 | 34.608 | D | -0.053 | C | 27.821 | 1453.0 |
| 273.0 | 277.40 | 34.607 | D | -0.051 | C | 27.820 | 1453.1 |
| 274.0 | 278.45 | 34.609 | D | -0.051 | C | 27.822 | 1453.1 |
| 275.0 | 279.45 | 34.608 | D | -0.049 | C | 27.821 | 1453.1 |
| 276.0 | 280.50 | 34.610 | D | -0.049 | C | 27.822 | 1453.1 |
| 277.0 | 281.50 | 34.611 | D | -0.048 | C | 27.823 | 1453.1 |
| 278.0 | 282.55 | 34.610 | D | -0.047 | C | 27.823 | 1453.2 |
| 279.0 | 283.60 | 34.611 | D | -0.046 | C | 27.823 | 1453.2 |
| 280.0 | 284.55 | 34.612 | D | -0.046 | C | 27.824 | 1453.2 |
| 281.0 | 285.60 | 34.612 | D | -0.045 | C | 27.824 | 1453.2 |
| 282.0 | 286.55 | 34.613 | D | -0.044 | C | 27.825 | 1453.2 |
| 283.0 | 287.65 | 34.613 | D | -0.043 | C | 27.825 | 1453.3 |
| 284.0 | 288.65 | 34.613 | D | -0.042 | C | 27.825 | 1453.3 |
| 285.0 | 289.65 | 34.614 | D | -0.042 | C | 27.825 | 1453.3 |
| 286.0 | 290.70 | 34.614 | D | -0.041 | C | 27.825 | 1453.3 |
| 287.0 | 291.70 | 34.614 | D | -0.040 | C | 27.826 | 1453.4 |
| 288.0 | 292.65 | 34.615 | D | -0.040 | C | 27.826 | 1453.4 |
| 289.0 | 293.70 | 34.615 | D | -0.039 | C | 27.826 | 1453.4 |
| 290.0 | 294.70 | 34.615 | D | -0.038 | C | 27.826 | 1453.4 |
| 291.0 | 295.70 | 34.616 | D | -0.038 | C | 27.827 | 1453.4 |
| 292.0 | 296.70 | 34.617 | D | -0.038 | C | 27.828 | 1453.4 |
| 293.0 | 297.70 | 34.616 | D | -0.037 | C | 27.827 | 1453.5 |
| 294.0 | 298.75 | 34.618 | D | -0.037 | C | 27.828 | 1453.5 |
| 295.0 | 299.75 | 34.618 | D | -0.037 | C | 27.829 | 1453.5 |
| 296.0 | 300.80 | 34.616 | D | -0.035 | C | 27.827 | 1453.5 |
| 297.0 | 301.80 | 34.619 | D | -0.036 | C | 27.829 | 1453.5 |
| 298.0 | 302.95 | 34.619 | D | -0.035 | C | 27.829 | 1453.6 |
| 299.0 | 303.90 | 34.620 | D | -0.035 | C | 27.830 | 1453.6 |
| 300.0 | 304.95 | 34.619 | D | -0.033 | C | 27.829 | 1453.6 |
| 301.0 | 305.95 | 34.619 | D | -0.032 | C | 27.829 | 1453.6 |
| 302.0 | 306.90 | 34.618 | D | -0.031 | C | 27.828 | 1453.7 |
| 303.0 | 308.00 | 34.620 | D | -0.031 | C | 27.830 | 1453.7 |
| 304.0 | 309.05 | 34.621 | D | -0.031 | C | 27.831 | 1453.7 |
| 305.0 | 309.95 | 34.620 | D | -0.029 | C | 27.829 | 1453.7 |
| 306.0 | 311.10 | 34.621 | D | -0.030 | C | 27.831 | 1453.7 |
| 307.0 | 312.05 | 34.621 | D | -0.029 | C | 27.830 | 1453.7 |
| 308.0 | 313.05 | 34.620 | D | -0.028 | C | 27.830 | 1453.8 |
| 309.0 | 314.10 | 34.622 | D | -0.028 | C | 27.831 | 1453.8 |
| 310.0 | 315.15 | 34.622 | D | -0.028 | C | 27.832 | 1453.8 |
| 311.0 | 316.10 | 34.622 | D | -0.026 | C | 27.831 | 1453.8 |
| 312.0 | 317.15 | 34.622 | D | -0.026 | C | 27.831 | 1453.8 |
| 313.0 | 318.15 | 34.624 | D | -0.026 | C | 27.832 | 1453.9 |
| 314.0 | 319.15 | 34.623 | D | -0.025 | C | 27.832 | 1453.9 |
| 315.0 | 320.15 | 34.623 | D | -0.025 | C | 27.832 | 1453.9 |
| 316.0 | 321.15 | 34.624 | D | -0.025 | C | 27.833 | 1453.9 |
| 317.0 | 322.20 | 34.623 | D | -0.024 | C | 27.832 | 1453.9 |
| 318.0 | 323.20 | 34.623 | D | -0.023 | C | 27.832 | 1454.0 |
| 319.0 | 324.25 | 34.624 | D | -0.024 | C | 27.833 | 1454.0 |
| 320.0 | 325.20 | 34.623 | D | -0.022 | C | 27.832 | 1454.0 |
| 321.0 | 326.30 | 34.625 | D | -0.023 | C | 27.834 | 1454.0 |
| 322.0 | 327.30 | 34.623 | D | -0.021 | C | 27.832 | 1454.0 |
| 323.0 | 328.25 | 34.623 | D | -0.021 | C | 27.832 | 1454.1 |
| 324.0 | 329.25 | 34.624 | D | -0.021 | C | 27.832 | 1454.1 |
| 325.0 | 330.35 | 34.625 | D | -0.021 | C | 27.833 | 1454.1 |
| 326.0 | 331.40 | 34.625 | D | -0.020 | C | 27.833 | 1454.1 |
| 327.0 | 332.40 | 34.625 | D | -0.020 | C | 27.833 | 1454.1 |
| 328.0 | 333.40 | 34.626 | D | -0.021 | C | 27.834 | 1454.1 |
| 329.0 | 334.45 | 34.626 | D | -0.020 | C | 27.834 | 1454.2 |
| 330.0 | 335.45 | 34.626 | D | -0.020 | C | 27.834 | 1454.2 |
| 331.0 | 336.40 | 34.626 | D | -0.019 | C | 27.834 | 1454.2 |
| 332.0 | 337.45 | 34.627 | D | -0.018 | C | 27.834 | 1454.2 |
| 333.0 | 338.45 | 34.626 | D | -0.017 | C | 27.834 | 1454.2 |
| 334.0 | 339.45 | 34.627 | D | -0.018 | C | 27.835 | 1454.3 |
| 335.0 | 340.55 | 34.626 | D | -0.017 | C | 27.834 | 1454.3 |
| 336.0 | 341.55 | 34.627 | D | -0.017 | C | 27.835 | 1454.3 |
| 337.0 | 342.50 | 34.628 | D | -0.017 | C | 27.835 | 1454.3 |
| 338.0 | 343.65 | 34.627 | D | -0.016 | C | 27.835 | 1454.3 |
| 339.0 | 344.55 | 34.626 | D | -0.015 | C | 27.834 | 1454.4 |

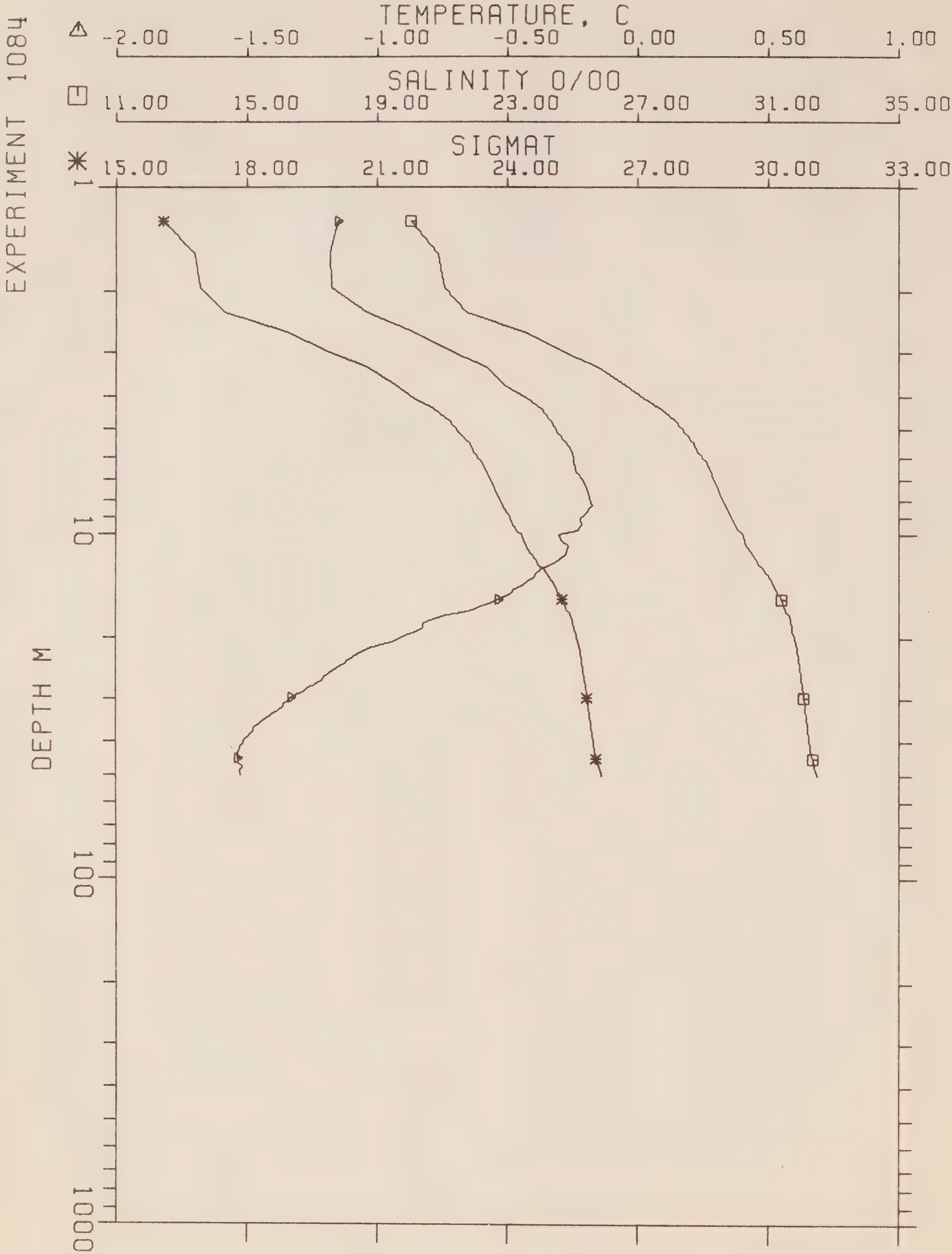
| DEPTH | PRESS | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| 340.0 | 345.55 | 34.628 | D | -0.015 | C | 27.835 | 1454.4 |
| 341.0 | 346.60 | 34.628 | D | -0.015 | C | 27.835 | 1454.4 |
| 342.0 | 347.60 | 34.628 | D | -0.015 | C | 27.835 | 1454.4 |
| 343.0 | 348.60 | 34.627 | D | -0.014 | C | 27.834 | 1454.4 |
| 344.0 | 349.65 | 34.628 | D | -0.015 | C | 27.836 | 1454.4 |
| 345.0 | 350.75 | 34.628 | D | -0.015 | C | 27.836 | 1454.5 |
| 346.0 | 351.70 | 34.629 | D | -0.015 | C | 27.836 | 1454.5 |
| 347.0 | 352.75 | 34.627 | D | -0.013 | C | 27.834 | 1454.5 |
| 348.0 | 353.75 | 34.628 | D | -0.013 | C | 27.835 | 1454.5 |
| 349.0 | 354.75 | 34.628 | D | -0.013 | C | 27.835 | 1454.5 |
| 350.0 | 355.75 | 34.628 | D | -0.012 | C | 27.835 | 1454.6 |
| 351.0 | 356.85 | 34.629 | D | -0.012 | C | 27.836 | 1454.6 |
| 352.0 | 357.80 | 34.628 | D | -0.011 | C | 27.835 | 1454.6 |
| 353.0 | 358.90 | 34.629 | D | -0.011 | C | 27.836 | 1454.6 |
| 354.0 | 359.95 | 34.628 | D | -0.010 | C | 27.835 | 1454.6 |
| 355.0 | 360.90 | 34.628 | D | -0.010 | C | 27.836 | 1454.6 |
| 356.0 | 361.95 | 34.629 | D | -0.010 | C | 27.836 | 1454.7 |
| 357.0 | 362.95 | 34.628 | D | -0.008 | C | 27.835 | 1454.7 |
| 358.0 | 363.95 | 34.630 | D | -0.010 | C | 27.837 | 1454.7 |
| 359.0 | 365.00 | 34.630 | D | -0.009 | C | 27.836 | 1454.7 |
| 360.0 | 366.00 | 34.629 | D | -0.008 | C | 27.836 | 1454.7 |
| 361.0 | 366.95 | 34.630 | D | -0.008 | C | 27.837 | 1454.8 |
| 362.0 | 368.00 | 34.630 | D | -0.008 | C | 27.837 | 1454.8 |
| 363.0 | 368.95 | 34.630 | D | -0.008 | C | 27.837 | 1454.8 |
| 364.0 | 370.00 | 34.630 | D | -0.008 | C | 27.837 | 1454.8 |
| 365.0 | 371.00 | 34.629 | D | -0.007 | C | 27.836 | 1454.8 |
| 366.0 | 372.00 | 34.629 | D | -0.007 | C | 27.836 | 1454.8 |
| 367.0 | 373.00 | 34.630 | D | -0.007 | C | 27.836 | 1454.9 |
| 368.0 | 374.10 | 34.630 | D | -0.008 | C | 27.837 | 1454.9 |
| 369.0 | 375.15 | 34.630 | D | -0.008 | C | 27.837 | 1454.9 |
| 370.0 | 376.15 | 34.629 | D | -0.007 | C | 27.836 | 1454.9 |
| 371.0 | 377.20 | 34.629 | D | -0.007 | C | 27.836 | 1454.9 |
| 372.0 | 378.20 | 34.629 | D | -0.006 | C | 27.836 | 1454.9 |
| 373.0 | 379.20 | 34.630 | D | -0.006 | C | 27.836 | 1455.0 |
| 374.0 | 380.25 | 34.630 | D | -0.006 | C | 27.837 | 1455.0 |
| 375.0 | 381.25 | 34.631 | D | -0.006 | C | 27.837 | 1455.0 |
| 376.0 | 382.25 | 34.629 | D | -0.005 | C | 27.836 | 1455.0 |
| 377.0 | 383.30 | 34.630 | D | -0.005 | C | 27.836 | 1455.0 |
| 378.0 | 384.30 | 34.630 | D | -0.005 | C | 27.836 | 1455.1 |
| 379.0 | 385.30 | 34.631 | D | -0.005 | C | 27.837 | 1455.1 |
| 380.0 | 386.35 | 34.631 | D | -0.005 | C | 27.837 | 1455.1 |
| 381.0 | 387.35 | 34.630 | D | -0.004 | C | 27.836 | 1455.1 |
| 382.0 | 388.30 | 34.630 | D | -0.003 | C | 27.836 | 1455.1 |
| 383.0 | 389.35 | 34.631 | D | -0.004 | C | 27.837 | 1455.1 |
| 384.0 | 390.40 | 34.630 | D | -0.004 | C | 27.837 | 1455.2 |
| 385.0 | 391.35 | 34.631 | D | -0.004 | C | 27.837 | 1455.2 |
| 386.0 | 392.40 | 34.631 | D | -0.003 | C | 27.838 | 1455.2 |
| 387.0 | 393.35 | 34.630 | D | -0.003 | C | 27.837 | 1455.2 |
| 388.0 | 394.45 | 34.632 | D | -0.004 | C | 27.838 | 1455.2 |
| 389.0 | 395.45 | 34.631 | D | -0.003 | C | 27.837 | 1455.3 |
| 390.0 | 396.55 | 34.631 | D | -0.003 | C | 27.837 | 1455.3 |
| 391.0 | 397.45 | 34.631 | D | -0.002 | C | 27.837 | 1455.3 |
| 392.0 | 398.50 | 34.631 | D | -0.003 | C | 27.837 | 1455.3 |
| 393.0 | 399.55 | 34.632 | D | -0.003 | C | 27.838 | 1455.3 |
| 394.0 | 400.55 | 34.630 | D | -0.001 | C | 27.836 | 1455.3 |
| 395.0 | 401.60 | 34.631 | D | -0.002 | C | 27.837 | 1455.4 |
| 396.0 | 402.65 | 34.631 | D | -0.002 | C | 27.837 | 1455.4 |
| 397.0 | 403.65 | 34.632 | D | -0.002 | C | 27.838 | 1455.4 |
| 398.0 | 404.65 | 34.631 | D | -0.001 | C | 27.837 | 1455.4 |
| 399.0 | 405.70 | 34.632 | D | -0.002 | C | 27.838 | 1455.4 |


EXPERIMENT 1082
TEMPERATURE, C
-2.00 -1.50 -1.00 -0.50 0.00 0.50 1.00
SALINITY 0/00
11.00 15.00 19.00 23.00 27.00 31.00 35.00
SIGMAT
15.00 18.00 21.00 24.00 27.00 30.00 33.00
DEPTH M
1
10
100
1000

| CRUISE | D'IBERVILLE FIORD-75 | EXPER NO. 1082 |
|---|---|---|
| LAT N.80-35-40 | LONG W.79-28-00 | WATER DEPTH 534 |
| DEPTH INCR. | DATE 120475 | LOCAL TIME 1345 |

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 1.35 | 20.150 E | -1.115 D | 16.190 | 1423.6 |
| | 2.00 | 21.461 E | -1.132 D | 17.247 | 1425.3 |
| | 2.95 | 24.268 E | -0.837 D | 19.509 | 1430.6 |
| | 3.45 | 26.526 E | -0.576 D | 21.326 | 1434.9 |
| | 4.15 | 27.757 E | -0.424 D | 22.314 | 1437.3 |
| | 4.90 | 28.518 E | -0.332 D | 22.925 | 1438.8 |
| | 5.45 | 28.970 E | -0.274 D | 23.288 | 1439.7 |
| | 6.30 | 29.297 E | -0.244 D | 23.549 | 1440.4 |
| | 7.00 | 29.497 E | -0.215 D | 23.710 | 1440.8 |
| | 7.70 | 29.667 E | -0.190 D | 23.846 | 1441.1 |
| | 8.50 | 29.859 E | -0.180 D | 24.000 | 1441.5 |
| | 9.10 | 30.038 E | -0.218 D | 24.146 | 1441.5 |
| | 9.80 | 30.240 E | -0.245 D | 24.310 | 1441.7 |
| | 10.70 | 30.395 E | -0.285 D | 24.436 | 1441.8 |
| | 11.30 | 30.542 E | -0.271 D | 24.554 | 1442.0 |
| | 11.95 | 30.714 E | -0.307 D | 24.693 | 1442.1 |
| | 12.75 | 30.944 E | -0.368 D | 24.881 | 1442.2 |
| | 13.50 | 31.107 E | -0.404 D | 25.013 | 1442.2 |
| | 14.10 | 31.227 E | -0.450 D | 25.112 | 1442.2 |
| | 14.90 | 31.327 E | -0.488 D | 25.194 | 1442.2 |
| | 15.45 | 31.423 E | -0.535 D | 25.272 | 1442.1 |
| | 16.25 | 31.508 E | -0.594 D | 25.343 | 1441.9 |
| | 16.95 | 31.594 E | -0.673 D | 25.415 | 1441.7 |
| | 17.70 | 31.673 E | -0.769 D | 25.482 | 1441.4 |
| | 18.40 | 31.716 E | -0.821 D | 25.518 | 1441.2 |
| | 19.10 | 31.751 E | -0.841 D | 25.547 | 1441.2 |
| | 19.75 | 31.794 E | -0.889 D | 25.583 | 1441.0 |
| | 20.50 | 31.824 E | -0.938 D | 25.609 | 1440.9 |
| | 21.20 | 31.863 E | -1.001 D | 25.642 | 1440.6 |
| | 21.95 | 31.886 E | -1.048 D | 25.662 | 1440.4 |
| | 22.55 | 31.906 E | -1.084 D | 25.680 | 1440.3 |
| | 23.20 | 31.929 E | -1.114 D | 25.699 | 1440.2 |
| | 24.00 | 31.946 E | -1.139 D | 25.713 | 1440.1 |
| | 24.80 | 31.965 E | -1.165 D | 25.729 | 1440.1 |
| | 25.35 | 31.980 E | -1.191 D | 25.742 | 1440.0 |
| | 26.15 | 31.996 E | -1.205 D | 25.755 | 1439.9 |
| | 26.85 | 32.015 E | -1.223 D | 25.771 | 1439.9 |
| | 27.50 | 32.032 E | -1.249 D | 25.785 | 1439.8 |
| | 28.25 | 32.047 E | -1.272 D | 25.798 | 1439.7 |
| | 28.95 | 32.067 E | -1.301 D | 25.815 | 1439.6 |
| | 29.70 | 32.080 E | -1.326 D | 25.827 | 1439.5 |
| | 30.35 | 32.091 E | -1.343 D | 25.836 | 1439.5 |
| | 31.10 | 32.100 E | -1.359 D | 25.843 | 1439.4 |
| | 31.75 | 32.108 E | -1.368 D | 25.850 | 1439.4 |
| | 32.45 | 32.122 E | -1.386 D | 25.862 | 1439.4 |
| | 33.30 | 32.138 E | -1.404 D | 25.875 | 1439.3 |
| | 33.95 | 32.149 E | -1.421 D | 25.884 | 1439.3 |
| | 34.70 | 32.166 E | -1.437 D | 25.898 | 1439.2 |
| | 35.50 | 32.179 E | -1.451 D | 25.909 | 1439.2 |
| | 36.10 | 32.189 E | -1.465 D | 25.918 | 1439.1 |
| | 36.85 | 32.198 E | -1.473 D | 25.926 | 1439.1 |
| | 37.50 | 32.208 E | -1.482 D | 25.933 | 1439.1 |
| | 38.30 | 32.219 E | -1.489 D | 25.943 | 1439.1 |
| | 38.95 | 32.232 E | -1.497 D | 25.953 | 1439.1 |
| | 39.65 | 32.245 E | -1.508 D | 25.964 | 1439.1 |
| | 40.35 | 32.255 E | -1.515 D | 25.972 | 1439.1 |
| | 41.15 | 32.266 E | -1.522 D | 25.982 | 1439.1 |
| | 41.90 | 32.277 E | -1.524 D | 25.990 | 1439.1 |
| | 42.60 | 32.291 E | -1.529 D | 26.002 | 1439.1 |
| | 43.20 | 32.306 E | -1.534 D | 26.014 | 1439.1 |
| | 44.00 | 32.325 E | -1.534 D | 26.029 | 1439.1 |
| | 44.80 | 32.347 E | -1.534 D | 26.047 | 1439.2 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 45.40 | 32.363 E | -1.533 D | 26.060 | 1439.2 |
| | 46.15 | 32.380 E | -1.533 D | 26.074 | 1439.2 |
| | 46.80 | 32.400 E | -1.522 D | 26.090 | 1439.3 |
| | 47.55 | 32.426 E | -1.517 D | 26.111 | 1439.4 |
| | 48.35 | 32.451 F | -1.523 D | 26.131 | 1439.4 |
| | 49.00 | 32.470 E | -1.527 D | 26.146 | 1439.4 |
| | 49.65 | 32.490 E | -1.526 D | 26.163 | 1439.5 |
| | 50.30 | 32.510 F | -1.523 D | 26.179 | 1439.5 |
| | 50.70 | 32.526 E | -1.517 D | 26.192 | 1439.6 |



EXPERIMENT 1084
TEMPERATURE, C
-2.00 -1.50 -1.00 -0.50 0.00 0.50 1.00
SALINITY 0/00
11.00 15.00 19.00 23.00 27.00 31.00 35.00
SIGMAT
15.00 18.00 21.00 24.00 27.00 30.00 33.00
DEPTH M
1
10
100
1000

CRUISE D'IBERVILLE FIORD-75 EXPER NO. 1084

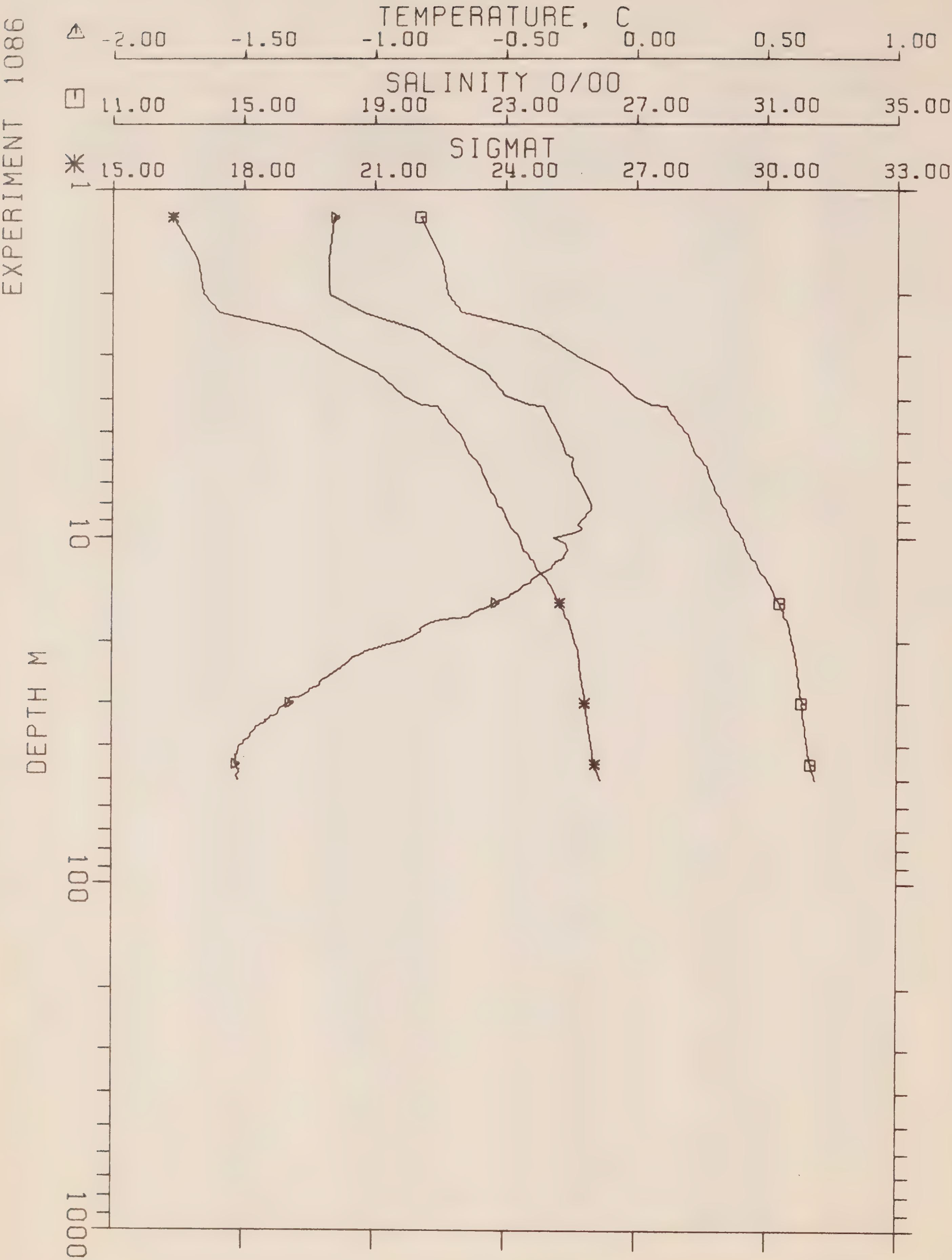
LAT N.80-35-40 LONG W.79-28-00 WATER DEPTH 534

DEPTH INCR. DATE 120475 LOCAL TIME 1350

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 1.25 | 20.031 E | -1.151 D | 16.094 | 1423.3 |
| | 1.55 | 20.893 E | -1.179 D | 16.788 | 1424.3 |
| | 1.95 | 21.073 E | -1.175 D | 16.933 | 1424.6 |
| | 2.30 | 21.751 E | -1.039 D | 17.481 | 1426.2 |
| | 2.60 | 23.513 E | -0.861 D | 18.901 | 1429.4 |
| | 3.00 | 24.793 E | -0.704 D | 19.931 | 1431.9 |
| | 3.30 | 25.807 E | -0.579 D | 20.747 | 1433.9 |
| | 3.70 | 26.632 E | -0.508 D | 21.410 | 1435.4 |
| | 4.05 | 27.185 E | -0.426 D | 21.854 | 1436.6 |
| | 4.35 | 27.723 E | -0.370 D | 22.286 | 1437.6 |
| | 4.70 | 28.174 E | -0.334 D | 22.648 | 1438.4 |
| | 5.10 | 28.481 E | -0.307 D | 22.894 | 1438.9 |
| | 5.45 | 28.720 E | -0.275 D | 23.086 | 1439.4 |
| | 5.80 | 28.876 E | -0.249 D | 23.211 | 1439.7 |
| | 6.15 | 29.062 E | -0.245 D | 23.360 | 1440.0 |
| | 6.50 | 29.221 E | -0.241 D | 23.488 | 1440.3 |
| | 6.90 | 29.336 E | -0.215 D | 23.580 | 1440.5 |
| | 7.25 | 29.436 E | -0.201 D | 23.660 | 1440.8 |
| | 7.60 | 29.524 E | -0.190 D | 23.730 | 1440.9 |
| | 7.90 | 29.609 E | -0.183 D | 23.799 | 1441.1 |
| | 8.30 | 29.718 E | -0.174 D | 23.887 | 1441.3 |
| | 8.70 | 29.839 E | -0.199 D | 23.985 | 1441.3 |
| | 9.05 | 29.928 E | -0.221 D | 24.057 | 1441.4 |
| | 9.40 | 30.006 E | -0.214 D | 24.120 | 1441.5 |
| | 9.75 | 30.131 E | -0.230 D | 24.221 | 1441.6 |
| | 10.05 | 30.251 E | -0.307 D | 24.320 | 1441.4 |
| | 10.45 | 30.292 E | -0.290 D | 24.353 | 1441.6 |
| | 10.80 | 30.360 E | -0.264 D | 24.407 | 1441.8 |
| | 11.10 | 30.446 E | -0.271 D | 24.476 | 1441.9 |
| | 11.40 | 30.530 E | -0.277 D | 24.544 | 1442.0 |
| | 11.80 | 30.622 E | -0.299 D | 24.619 | 1442.0 |
| | 12.20 | 30.716 E | -0.328 D | 24.696 | 1442.0 |
| | 12.55 | 30.846 E | -0.368 D | 24.802 | 1442.0 |
| | 12.95 | 30.970 E | -0.390 D | 24.903 | 1442.1 |
| | 13.35 | 31.048 E | -0.399 D | 24.965 | 1442.2 |
| | 13.65 | 31.111 E | -0.424 D | 25.018 | 1442.1 |
| | 14.10 | 31.170 E | -0.441 D | 25.065 | 1442.2 |
| | 14.45 | 31.233 E | -0.477 D | 25.118 | 1442.1 |
| | 14.75 | 31.280 E | -0.486 D | 25.155 | 1442.1 |
| | 15.05 | 31.342 E | -0.507 D | 25.207 | 1442.1 |
| | 15.40 | 31.395 E | -0.536 D | 25.250 | 1442.0 |
| | 15.80 | 31.447 E | -0.568 D | 25.293 | 1442.0 |
| | 16.15 | 31.487 E | -0.598 D | 25.327 | 1441.9 |
| | 16.55 | 31.533 E | -0.635 D | 25.365 | 1441.8 |
| | 16.85 | 31.572 E | -0.676 D | 25.398 | 1441.7 |
| | 17.20 | 31.630 E | -0.737 D | 25.446 | 1441.5 |
| | 17.60 | 31.668 E | -0.778 D | 25.478 | 1441.3 |
| | 17.95 | 31.693 E | -0.809 D | 25.500 | 1441.2 |
| | 18.25 | 31.706 E | -0.825 D | 25.510 | 1441.2 |
| | 18.60 | 31.721 E | -0.826 D | 25.522 | 1441.2 |
| | 18.95 | 31.740 E | -0.840 D | 25.538 | 1441.2 |
| | 19.35 | 31.764 E | -0.863 D | 25.558 | 1441.1 |
| | 19.70 | 31.791 E | -0.895 D | 25.581 | 1441.0 |
| | 20.05 | 31.807 E | -0.916 D | 25.595 | 1440.9 |
| | 20.45 | 31.826 E | -0.941 D | 25.611 | 1440.8 |
| | 20.80 | 31.839 E | -0.963 D | 25.622 | 1440.8 |
| | 21.10 | 31.868 E | -1.000 D | 25.646 | 1440.6 |
| | 21.50 | 31.887 E | -1.034 D | 25.663 | 1440.5 |
| | 21.85 | 31.897 E | -1.056 D | 25.672 | 1440.4 |
| | 22.20 | 31.905 E | -1.074 D | 25.678 | 1440.4 |
| | 22.55 | 31.914 E | -1.089 D | 25.686 | 1440.3 |
| | 22.95 | 31.926 E | -1.099 D | 25.696 | 1440.3 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 23.25 | 31.938 E | -1.113 D | 25.706 | 1440.2 |
| | 23.70 | 31.947 E | -1.126 D | 25.714 | 1440.2 |
| | 24.00 | 31.955 E | -1.140 D | 25.720 | 1440.1 |
| | 24.40 | 31.965 E | -1.154 D | 25.729 | 1440.1 |
| | 24.75 | 31.977 E | -1.168 D | 25.739 | 1440.1 |
| | 25.10 | 31.985 E | -1.180 D | 25.745 | 1440.0 |
| | 25.45 | 31.992 E | -1.191 D | 25.752 | 1440.0 |
| | 25.75 | 31.999 E | -1.202 D | 25.758 | 1439.9 |
| | 26.20 | 32.005 E | -1.207 D | 25.763 | 1439.9 |
| | 26.55 | 32.018 E | -1.212 D | 25.773 | 1439.9 |
| | 26.90 | 32.027 E | -1.225 D | 25.781 | 1439.9 |
| | 27.25 | 32.035 E | -1.238 D | 25.788 | 1439.8 |
| | 27.65 | 32.045 E | -1.250 D | 25.796 | 1439.8 |
| | 27.90 | 32.051 E | -1.264 D | 25.801 | 1439.8 |
| | 28.35 | 32.061 E | -1.274 D | 25.810 | 1439.7 |
| | 28.80 | 32.071 E | -1.284 D | 25.818 | 1439.7 |
| | 29.10 | 32.086 E | -1.305 D | 25.831 | 1439.6 |
| | 29.45 | 32.090 E | -1.321 D | 25.834 | 1439.6 |
| | 29.80 | 32.095 E | -1.330 D | 25.838 | 1439.5 |
| | 30.25 | 32.100 E | -1.336 D | 25.842 | 1439.5 |
| | 30.60 | 32.105 E | -1.345 D | 25.847 | 1439.5 |
| | 30.90 | 32.110 E | -1.353 D | 25.851 | 1439.5 |
| | 31.30 | 32.115 E | -1.362 D | 25.856 | 1439.4 |
| | 31.70 | 32.113 E | -1.362 D | 25.854 | 1439.4 |
| | 31.95 | 32.121 E | -1.369 D | 25.860 | 1439.4 |
| | 32.40 | 32.130 E | -1.381 D | 25.868 | 1439.4 |
| | 32.80 | 32.139 E | -1.392 D | 25.876 | 1439.4 |
| | 33.15 | 32.142 E | -1.398 D | 25.878 | 1439.3 |
| | 33.55 | 32.156 E | -1.408 D | 25.889 | 1439.3 |
| | 33.90 | 32.161 E | -1.420 D | 25.894 | 1439.3 |
| | 34.25 | 32.165 E | -1.425 D | 25.897 | 1439.3 |
| | 34.60 | 32.173 E | -1.434 D | 25.904 | 1439.2 |
| | 35.00 | 32.183 E | -1.445 D | 25.912 | 1439.2 |
| | 35.35 | 32.187 E | -1.452 D | 25.916 | 1439.2 |
| | 35.75 | 32.195 E | -1.458 D | 25.922 | 1439.2 |
| | 36.15 | 32.200 E | -1.463 D | 25.927 | 1439.2 |
| | 36.45 | 32.202 E | -1.469 D | 25.928 | 1439.1 |
| | 36.80 | 32.208 E | -1.475 D | 25.933 | 1439.1 |
| | 37.25 | 32.211 E | -1.477 D | 25.936 | 1439.1 |
| | 37.60 | 32.218 E | -1.479 D | 25.941 | 1439.1 |
| | 37.95 | 32.224 E | -1.485 D | 25.947 | 1439.1 |
| | 38.30 | 32.228 E | -1.490 D | 25.950 | 1439.1 |
| | 38.65 | 32.233 E | -1.494 D | 25.954 | 1439.1 |
| | 39.05 | 32.242 E | -1.498 D | 25.961 | 1439.1 |
| | 39.40 | 32.250 E | -1.504 D | 25.968 | 1439.1 |
| | 39.85 | 32.256 E | -1.509 D | 25.973 | 1439.1 |
| | 40.20 | 32.264 E | -1.515 D | 25.979 | 1439.1 |
| | 40.55 | 32.267 E | -1.517 D | 25.982 | 1439.1 |
| | 40.95 | 32.274 E | -1.521 D | 25.988 | 1439.1 |
| | 41.35 | 32.280 E | -1.524 D | 25.993 | 1439.1 |
| | 41.70 | 32.284 E | -1.525 D | 25.996 | 1439.1 |
| | 42.05 | 32.288 E | -1.527 D | 25.999 | 1439.1 |
| | 42.45 | 32.296 E | -1.531 D | 26.006 | 1439.1 |
| | 42.85 | 32.304 E | -1.532 D | 26.013 | 1439.1 |
| | 43.15 | 32.313 E | -1.535 D | 26.020 | 1439.1 |
| | 43.60 | 32.321 E | -1.534 D | 26.026 | 1439.1 |
| | 43.95 | 32.331 E | -1.535 D | 26.034 | 1439.1 |
| | 44.35 | 32.341 E | -1.535 D | 26.042 | 1439.2 |
| | 44.70 | 32.353 E | -1.537 D | 26.052 | 1439.2 |
| | 45.15 | 32.360 E | -1.533 D | 26.058 | 1439.2 |
| | 45.45 | 32.369 E | -1.532 D | 26.065 | 1439.2 |
| | 45.90 | 32.382 E | -1.536 D | 26.076 | 1439.2 |
| | 46.25 | 32.384 E | -1.531 D | 26.077 | 1439.3 |
| | 46.60 | 32.395 E | -1.526 D | 26.086 | 1439.3 |
| | 47.00 | 32.406 E | -1.519 D | 26.095 | 1439.4 |
| | 47.40 | 32.419 E | -1.515 D | 26.105 | 1439.4 |
| | 47.75 | 32.434 E | -1.519 D | 26.117 | 1439.4 |
| | 48.15 | 32.447 E | -1.523 D | 26.128 | 1439.4 |
| | 48.60 | 32.456 E | -1.524 D | 26.136 | 1439.4 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 48.90 | 32.469 F | -1.528 D | 26.146 | 1439.4 |
| | 49.30 | 32.477 E | -1.527 D | 26.152 | 1439.5 |
| | 49.65 | 32.488 E | -1.527 D | 26.162 | 1439.5 |
| | 50.00 | 32.500 E | -1.526 D | 26.171 | 1439.5 |



EXPERIMENT 1086
TEMPERATURE, C
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-1.00
-0.50
0.00
0.50
1.00
SALINITY 0/00
11.00
15.00
19.00
23.00
27.00
31.00
35.00
SIGMAT
15.00
18.00
21.00
24.00
27.00
30.00
33.00
1
10
100
1000
DEPTH M

CRUISE D'IBERVILLE FIORD-75 EXPER NO. 1036

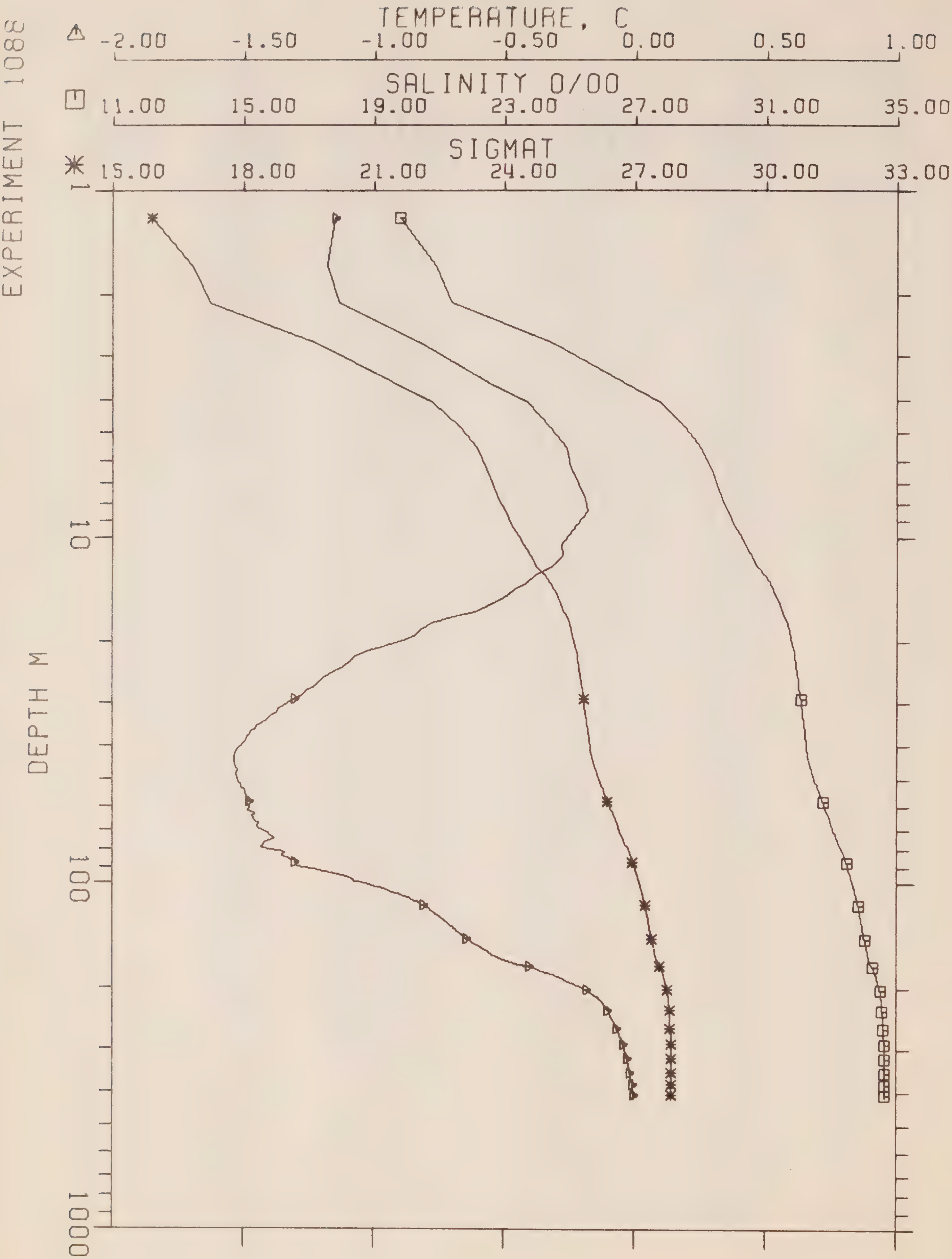
LAT N.80-35-40 LONG W.79-28-00 WATER DEPTH 534

DEPTH INCR. DATE 120475 LOCAL TIME 1357

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 1.20 | 20.404 E | -1.153 D | 16.394 | 1423.8 |
| | 1.60 | 21.095 E | -1.177 D | 16.951 | 1424.6 |
| | 2.00 | 21.258 E | -1.174 D | 17.082 | 1424.8 |
| | 2.25 | 21.692 E | -1.045 D | 17.433 | 1426.0 |
| | 2.55 | 23.959 E | -0.832 D | 19.260 | 1430.2 |
| | 3.00 | 25.170 E | -0.691 D | 20.234 | 1432.5 |
| | 3.35 | 26.172 E | -0.573 D | 21.040 | 1434.5 |
| | 3.90 | 26.938 E | -0.501 D | 21.656 | 1435.9 |
| | 4.15 | 27.421 E | -0.406 D | 22.043 | 1437.0 |
| | 4.20 | 27.912 E | -0.357 D | 22.437 | 1437.9 |
| | 4.70 | 28.264 E | -0.320 D | 22.720 | 1438.5 |
| | 5.05 | 28.588 E | -0.296 D | 22.981 | 1439.1 |
| | 5.70 | 28.797 E | -0.269 D | 23.148 | 1439.5 |
| | 5.90 | 28.973 E | -0.240 D | 23.289 | 1439.9 |
| | 6.25 | 29.144 E | -0.247 D | 23.426 | 1440.1 |
| | 6.60 | 29.239 E | -0.235 D | 23.503 | 1440.3 |
| | 6.95 | 29.345 E | -0.208 D | 23.587 | 1440.6 |
| | 7.40 | 29.459 E | -0.196 D | 23.679 | 1440.8 |
| | 7.60 | 29.542 E | -0.183 D | 23.745 | 1441.0 |
| | 8.05 | 29.648 E | -0.171 D | 23.830 | 1441.2 |
| | 8.30 | 29.772 E | -0.171 D | 23.930 | 1441.4 |
| | 8.85 | 29.878 E | -0.204 D | 24.016 | 1441.4 |
| | 9.20 | 29.977 E | -0.222 D | 24.097 | 1441.4 |
| | 9.40 | 30.044 E | -0.206 D | 24.150 | 1441.6 |
| | 9.65 | 30.156 E | -0.231 D | 24.241 | 1441.7 |
| | 10.00 | 30.276 E | -0.317 D | 24.341 | 1441.4 |
| | 10.40 | 30.316 E | -0.270 D | 24.371 | 1441.7 |
| | 10.95 | 30.391 E | -0.258 D | 24.431 | 1441.9 |
| | 11.10 | 30.490 E | -0.271 D | 24.512 | 1442.0 |
| | 11.50 | 30.579 E | -0.275 D | 24.533 | 1442.1 |
| | 11.75 | 30.672 E | -0.306 D | 24.659 | 1442.1 |
| | 12.30 | 30.752 E | -0.327 D | 24.725 | 1442.1 |
| | 12.80 | 30.896 E | -0.370 D | 24.842 | 1442.1 |
| | 13.15 | 31.003 E | -0.389 D | 24.929 | 1442.2 |
| | 13.55 | 31.069 E | -0.405 D | 24.983 | 1442.2 |
| | 13.65 | 31.117 E | -0.424 D | 25.022 | 1442.2 |
| | 14.20 | 31.181 E | -0.444 D | 25.075 | 1442.2 |
| | 14.55 | 31.245 E | -0.477 D | 25.127 | 1442.1 |
| | 14.95 | 31.296 E | -0.487 D | 25.169 | 1442.1 |
| | 15.20 | 31.361 E | -0.513 D | 25.222 | 1442.1 |
| | 15.50 | 31.395 E | -0.539 D | 25.250 | 1442.0 |
| | 16.00 | 31.452 E | -0.569 D | 25.297 | 1442.0 |
| | 16.25 | 31.504 E | -0.606 D | 25.341 | 1441.9 |
| | 16.70 | 31.528 E | -0.628 D | 25.361 | 1441.8 |
| | 16.95 | 31.542 E | -0.640 D | 25.372 | 1441.8 |
| | 17.30 | 31.630 E | -0.736 D | 25.446 | 1441.5 |
| | 17.65 | 31.676 E | -0.780 D | 25.485 | 1441.3 |
| | 18.15 | 31.702 E | -0.816 D | 25.507 | 1441.2 |
| | 18.35 | 31.708 E | -0.823 D | 25.512 | 1441.2 |
| | 18.75 | 31.727 E | -0.821 D | 25.527 | 1441.2 |
| | 19.20 | 31.756 E | -0.846 D | 25.551 | 1441.2 |
| | 19.55 | 31.778 E | -0.867 D | 25.570 | 1441.1 |
| | 19.80 | 31.785 E | -0.885 D | 25.576 | 1441.0 |
| | 20.15 | 31.815 E | -0.922 D | 25.601 | 1440.9 |
| | 20.35 | 31.824 E | -0.944 D | 25.609 | 1440.8 |
| | 20.90 | 31.855 E | -0.992 D | 25.636 | 1440.6 |
| | 21.25 | 31.896 E | -1.032 D | 25.669 | 1440.5 |
| | 21.75 | 31.896 E | -1.049 D | 25.670 | 1440.5 |
| | 22.05 | 31.892 E | -1.063 D | 25.667 | 1440.4 |
| | 22.20 | 31.913 E | -1.078 D | 25.685 | 1440.3 |
| | 22.60 | 31.927 E | -1.091 D | 25.696 | 1440.3 |
| | 23.00 | 31.931 E | -1.102 D | 25.700 | 1440.3 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 23.65 | 31.945 E | -1.121 D | 25.712 | 1440.2 |
| | 23.75 | 31.946 E | -1.126 D | 25.713 | 1440.2 |
| | 24.10 | 31.959 E | -1.140 D | 25.724 | 1440.1 |
| | 24.60 | 31.965 E | -1.157 D | 25.729 | 1440.1 |
| | 25.00 | 31.976 E | -1.170 D | 25.738 | 1440.0 |
| | 25.35 | 31.983 E | -1.174 D | 25.744 | 1440.0 |
| | 25.70 | 31.995 E | -1.193 D | 25.754 | 1440.0 |
| | 26.00 | 32.006 E | -1.199 D | 25.763 | 1440.0 |
| | 26.35 | 32.016 E | -1.206 D | 25.771 | 1440.0 |
| | 26.70 | 32.008 E | -1.207 D | 25.765 | 1439.9 |
| | 27.15 | 32.032 E | -1.224 D | 25.785 | 1439.9 |
| | 27.20 | 32.038 E | -1.238 D | 25.790 | 1439.8 |
| | 27.85 | 32.047 E | -1.247 D | 25.798 | 1439.8 |
| | 28.30 | 32.054 E | -1.259 D | 25.803 | 1439.8 |
| | 28.65 | 32.068 E | -1.277 D | 25.816 | 1439.7 |
| | 29.10 | 32.086 E | -1.294 D | 25.831 | 1439.7 |
| | 29.05 | 32.089 E | -1.317 D | 25.833 | 1439.6 |
| | 29.55 | 32.102 E | -1.323 D | 25.844 | 1439.6 |
| | 30.05 | 32.094 E | -1.325 D | 25.837 | 1439.6 |
| | 30.50 | 32.090 E | -1.334 D | 25.835 | 1439.5 |
| | 30.90 | 32.115 E | -1.348 D | 25.855 | 1439.5 |
| | 31.05 | 32.108 E | -1.355 D | 25.849 | 1439.5 |
| | 31.30 | 32.109 E | -1.358 D | 25.851 | 1439.4 |
| | 31.65 | 32.118 E | -1.358 D | 25.858 | 1439.5 |
| | 32.35 | 32.136 E | -1.370 D | 25.873 | 1439.4 |
| | 32.85 | 32.129 E | -1.380 D | 25.867 | 1439.4 |
| | 32.80 | 32.140 E | -1.390 D | 25.876 | 1439.4 |
| | 33.30 | 32.144 E | -1.396 D | 25.880 | 1439.4 |
| | 33.60 | 32.171 E | -1.415 D | 25.902 | 1439.3 |
| | 34.25 | 32.158 E | -1.412 D | 25.892 | 1439.3 |
| | 34.40 | 32.171 E | -1.428 D | 25.902 | 1439.3 |
| | 34.90 | 32.186 E | -1.434 D | 25.914 | 1439.3 |
| | 35.20 | 32.189 E | -1.447 D | 25.918 | 1439.2 |
| | 35.65 | 32.189 E | -1.450 D | 25.918 | 1439.2 |
| | 36.15 | 32.197 E | -1.456 D | 25.924 | 1439.2 |
| | 36.30 | 32.202 E | -1.461 D | 25.928 | 1439.2 |
| | 36.75 | 32.207 E | -1.464 D | 25.932 | 1439.2 |
| | 36.95 | 32.217 E | -1.472 D | 25.940 | 1439.2 |
| | 37.55 | 32.224 E | -1.472 D | 25.946 | 1439.2 |
| | 37.85 | 32.220 E | -1.476 D | 25.943 | 1439.2 |
| | 38.15 | 32.221 E | -1.480 D | 25.944 | 1439.1 |
| | 38.35 | 32.237 E | -1.485 D | 25.957 | 1439.1 |
| | 38.70 | 32.245 E | -1.494 D | 25.964 | 1439.1 |
| | 39.30 | 32.247 E | -1.496 D | 25.965 | 1439.1 |
| | 39.70 | 32.262 E | -1.506 D | 25.978 | 1439.1 |
| | 40.05 | 32.259 E | -1.509 D | 25.975 | 1439.1 |
| | 40.30 | 32.272 E | -1.513 D | 25.986 | 1439.1 |
| | 40.65 | 32.273 E | -1.517 D | 25.987 | 1439.1 |
| | 41.25 | 32.286 E | -1.513 D | 25.998 | 1439.1 |
| | 41.60 | 32.288 E | -1.522 D | 25.999 | 1439.1 |
| | 42.00 | 32.287 E | -1.520 D | 25.999 | 1439.1 |
| | 42.25 | 32.295 E | -1.522 D | 26.005 | 1439.1 |
| | 42.45 | 32.311 E | -1.530 D | 26.018 | 1439.1 |
| | 42.95 | 32.310 E | -1.525 D | 26.017 | 1439.1 |
| | 43.40 | 32.320 E | -1.526 D | 26.025 | 1439.1 |
| | 43.80 | 32.334 E | -1.527 D | 26.036 | 1439.2 |
| | 44.30 | 32.335 E | -1.523 D | 26.037 | 1439.2 |
| | 44.35 | 32.355 E | -1.528 D | 26.054 | 1439.2 |
| | 44.95 | 32.361 E | -1.531 D | 26.059 | 1439.2 |
| | 45.35 | 32.371 E | -1.524 D | 26.066 | 1439.3 |
| | 45.85 | 32.378 E | -1.527 D | 26.073 | 1439.3 |
| | 46.10 | 32.395 E | -1.522 D | 26.086 | 1439.3 |
| | 46.50 | 32.393 E | -1.519 D | 26.084 | 1439.3 |
| | 46.80 | 32.408 E | -1.511 D | 26.096 | 1439.4 |
| | 47.25 | 32.425 E | -1.515 D | 26.110 | 1439.4 |
| | 47.55 | 32.437 E | -1.514 D | 26.120 | 1439.4 |
| | 47.75 | 32.454 E | -1.517 D | 26.133 | 1439.5 |
| | 48.30 | 32.463 E | -1.522 D | 26.141 | 1439.4 |
| | 48.85 | 32.474 E | -1.523 D | 26.150 | 1439.5 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 49.15 | 32.477 E | -1.523 D | 26.152 | 1439.5 |
| | 49.30 | 32.493 E | -1.523 D | 26.165 | 1439.5 |
| | 49.65 | 32.497 E | -1.520 D | 26.169 | 1439.5 |
| | 50.15 | 32.510 E | -1.521 D | 26.179 | 1439.6 |


EXPERIMENT 1088
TEMPERATURE, C
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SALINITY 0/00
11.00 15.00 19.00 23.00 27.00 31.00 35.00
SIGMAT
15.00 18.00 21.00 24.00 27.00 30.00 33.00
DEPTH M
1
10
100
1000

CRUISE D'IBERVILLE FIORD-75 EXPER NO. 1088

LAT N.80-35-40 LONG W.79-28-00 WATER DEPTH 534

DEPTH INCR. DATE 120475 LOCAL TIME 1414

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 1.20 | 19.795 E | -1.152 D | 15.904 | 1422.9 |
| | 1.65 | 20.931 E | -1.178 D | 16.819 | 1424.4 |
| | 2.10 | 21.417 E | -1.133 D | 17.211 | 1425.2 |
| | 2.75 | 24.464 E | -0.821 D | 19.667 | 1430.9 |
| | 3.55 | 26.636 E | -0.567 D | 21.414 | 1435.1 |
| | 4.10 | 27.800 E | -0.409 D | 22.348 | 1437.5 |
| | 4.80 | 28.576 E | -0.323 D | 22.971 | 1439.0 |
| | 5.55 | 29.055 E | -0.260 D | 23.356 | 1439.9 |
| | 6.35 | 29.347 E | -0.245 D | 23.590 | 1440.4 |
| | 7.05 | 29.525 E | -0.213 D | 23.732 | 1440.8 |
| | 7.75 | 29.680 E | -0.189 D | 23.856 | 1441.2 |
| | 8.45 | 29.879 E | -0.182 D | 24.017 | 1441.5 |
| | 9.20 | 30.055 E | -0.220 D | 24.160 | 1441.6 |
| | 9.90 | 30.261 E | -0.253 D | 24.327 | 1441.7 |
| | 10.60 | 30.420 E | -0.281 D | 24.455 | 1441.8 |
| | 11.35 | 30.592 E | -0.273 D | 24.594 | 1442.1 |
| | 12.10 | 30.765 E | -0.314 D | 24.734 | 1442.2 |
| | 12.85 | 30.997 E | -0.380 D | 24.924 | 1442.2 |
| | 13.55 | 31.148 E | -0.417 D | 25.047 | 1442.2 |
| | 14.20 | 31.257 E | -0.462 D | 25.136 | 1442.2 |
| | 14.95 | 31.363 E | -0.501 D | 25.224 | 1442.2 |
| | 15.55 | 31.449 E | -0.552 D | 25.294 | 1442.1 |
| | 16.35 | 31.526 E | -0.605 D | 25.358 | 1441.9 |
| | 17.05 | 31.615 E | -0.696 D | 25.433 | 1441.6 |
| | 17.75 | 31.685 E | -0.780 D | 25.492 | 1441.4 |
| | 18.55 | 31.727 E | -0.822 D | 25.527 | 1441.2 |
| | 19.30 | 31.762 E | -0.844 D | 25.556 | 1441.2 |
| | 19.95 | 31.803 E | -0.902 D | 25.591 | 1441.0 |
| | 20.65 | 31.842 E | -0.963 D | 25.624 | 1440.8 |
| | 21.25 | 31.871 E | -1.021 D | 25.649 | 1440.5 |
| | 22.00 | 31.899 E | -1.069 D | 25.674 | 1440.4 |
| | 22.75 | 31.915 E | -1.092 D | 25.686 | 1440.3 |
| | 23.55 | 31.937 E | -1.116 D | 25.705 | 1440.2 |
| | 24.20 | 31.950 E | -1.143 D | 25.717 | 1440.1 |
| | 24.80 | 31.966 E | -1.172 D | 25.730 | 1440.0 |
| | 25.55 | 31.985 E | -1.194 D | 25.746 | 1440.0 |
| | 26.25 | 31.999 E | -1.209 D | 25.758 | 1439.9 |
| | 27.00 | 32.019 E | -1.230 D | 25.775 | 1439.9 |
| | 27.65 | 32.036 E | -1.254 D | 25.789 | 1439.8 |
| | 28.45 | 32.052 E | -1.274 D | 25.802 | 1439.7 |
| | 29.20 | 32.072 E | -1.303 D | 25.820 | 1439.6 |
| | 29.90 | 32.084 E | -1.329 D | 25.829 | 1439.5 |
| | 30.60 | 32.093 E | -1.345 D | 25.837 | 1439.5 |
| | 31.20 | 32.102 E | -1.363 D | 25.845 | 1439.4 |
| | 32.00 | 32.111 E | -1.371 D | 25.853 | 1439.4 |
| | 32.70 | 32.130 E | -1.393 D | 25.868 | 1439.3 |
| | 33.55 | 32.144 E | -1.408 D | 25.880 | 1439.3 |
| | 34.20 | 32.156 E | -1.425 D | 25.890 | 1439.2 |
| | 34.80 | 32.170 E | -1.445 D | 25.902 | 1439.2 |
| | 35.60 | 32.184 E | -1.457 D | 25.913 | 1439.2 |
| | 36.30 | 32.193 E | -1.469 D | 25.921 | 1439.1 |
| | 37.00 | 32.203 E | -1.477 D | 25.929 | 1439.1 |
| | 37.70 | 32.212 E | -1.483 D | 25.937 | 1439.1 |
| | 38.50 | 32.221 E | -1.491 D | 25.944 | 1439.1 |
| | 39.25 | 32.236 E | -1.498 D | 25.956 | 1439.1 |
| | 39.80 | 32.249 E | -1.512 D | 25.967 | 1439.1 |
| | 40.60 | 32.259 E | -1.518 D | 25.976 | 1439.1 |
| | 41.35 | 32.269 E | -1.523 D | 25.984 | 1439.1 |
| | 42.00 | 32.280 E | -1.528 D | 25.993 | 1439.1 |
| | 42.75 | 32.297 E | -1.533 D | 26.006 | 1439.1 |
| | 43.50 | 32.313 E | -1.535 D | 26.020 | 1439.1 |
| | 44.20 | 32.334 E | -1.536 D | 26.037 | 1439.1 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 44.90 | 32.354 E | -1.535 D | 26.053 | 1439.2 |
| | 45.50 | 32.372 E | -1.536 D | 26.068 | 1439.2 |
| | 46.35 | 32.389 E | -1.529 D | 26.031 | 1439.3 |
| | 47.00 | 32.410 E | -1.520 D | 26.098 | 1439.4 |
| | 47.75 | 32.436 E | -1.523 D | 26.119 | 1439.4 |
| | 48.50 | 32.456 E | -1.529 D | 26.135 | 1439.4 |
| | 49.30 | 32.478 E | -1.527 D | 26.153 | 1439.5 |
| | 49.95 | 32.499 E | -1.525 D | 26.171 | 1439.5 |
| | 50.70 | 32.523 E | -1.519 D | 26.190 | 1439.6 |
| | 51.40 | 32.549 E | -1.512 D | 26.211 | 1439.7 |
| | 52.20 | 32.576 E | -1.511 D | 26.232 | 1439.7 |
| | 52.80 | 32.597 E | -1.509 D | 26.249 | 1439.8 |
| | 53.60 | 32.623 E | -1.497 D | 26.270 | 1439.9 |
| | 54.30 | 32.650 E | -1.493 D | 26.292 | 1439.9 |
| | 55.05 | 32.673 E | -1.493 D | 26.310 | 1440.0 |
| | 55.75 | 32.689 E | -1.488 D | 26.323 | 1440.1 |
| | 56.45 | 32.712 E | -1.489 D | 26.342 | 1440.1 |
| | 57.15 | 32.729 E | -1.486 D | 26.356 | 1440.1 |
| | 57.80 | 32.751 E | -1.481 D | 26.374 | 1440.2 |
| | 58.60 | 32.774 E | -1.483 D | 26.392 | 1440.2 |
| | 59.30 | 32.794 E | -1.483 D | 26.408 | 1440.3 |
| | 60.25 | 32.815 E | -1.474 D | 26.425 | 1440.4 |
| | 60.90 | 32.839 E | -1.479 D | 26.444 | 1440.4 |
| | 61.45 | 32.853 E | -1.487 D | 26.456 | 1440.4 |
| | 62.25 | 32.878 E | -1.463 D | 26.476 | 1440.5 |
| | 62.90 | 32.901 E | -1.456 D | 26.494 | 1440.6 |
| | 63.80 | 32.924 E | -1.468 D | 26.513 | 1440.6 |
| | 64.40 | 32.941 E | -1.462 D | 26.527 | 1440.7 |
| | 65.00 | 32.956 E | -1.467 D | 26.539 | 1440.7 |
| | 65.85 | 32.973 E | -1.453 D | 26.552 | 1440.8 |
| | 66.65 | 32.991 E | -1.447 D | 26.567 | 1440.8 |
| | 67.30 | 33.009 E | -1.442 D | 26.581 | 1440.9 |
| | 68.00 | 33.029 E | -1.450 D | 26.598 | 1440.9 |
| | 68.80 | 33.040 E | -1.447 D | 26.607 | 1441.0 |
| | 69.55 | 33.057 E | -1.433 D | 26.620 | 1441.1 |
| | 70.30 | 33.077 E | -1.417 D | 26.636 | 1441.2 |
| | 71.00 | 33.100 E | -1.405 D | 26.654 | 1441.3 |
| | 71.65 | 33.118 E | -1.403 D | 26.669 | 1441.3 |
| | 72.40 | 33.134 E | -1.394 D | 26.682 | 1441.4 |
| | 73.15 | 33.153 E | -1.390 D | 26.697 | 1441.5 |
| | 73.80 | 33.169 E | -1.379 D | 26.709 | 1441.5 |
| | 74.65 | 33.195 E | -1.387 D | 26.730 | 1441.5 |
| | 75.35 | 33.210 E | -1.413 D | 26.743 | 1441.5 |
| | 76.10 | 33.225 E | -1.419 D | 26.756 | 1441.5 |
| | 76.70 | 33.244 E | -1.425 D | 26.772 | 1441.5 |
| | 77.50 | 33.268 E | -1.425 D | 26.790 | 1441.5 |
| | 78.20 | 33.297 E | -1.433 D | 26.814 | 1441.5 |
| | 79.05 | 33.323 E | -1.427 D | 26.836 | 1441.6 |
| | 79.70 | 33.338 E | -1.402 D | 26.847 | 1441.8 |
| | 80.35 | 33.351 E | -1.366 D | 26.856 | 1442.0 |
| | 81.20 | 33.367 E | -1.338 D | 26.868 | 1442.1 |
| | 81.95 | 33.388 E | -1.340 D | 26.885 | 1442.2 |
| | 82.60 | 33.395 E | -1.354 D | 26.892 | 1442.1 |
| | 83.20 | 33.403 E | -1.356 D | 26.898 | 1442.1 |
| | 84.10 | 33.411 E | -1.332 D | 26.904 | 1442.3 |
| | 84.80 | 33.430 E | -1.329 D | 26.919 | 1442.3 |
| | 85.50 | 33.433 E | -1.314 D | 26.921 | 1442.4 |
| | 86.25 | 33.455 E | -1.290 D | 26.938 | 1442.6 |
| | 87.00 | 33.473 E | -1.304 D | 26.953 | 1442.5 |
| | 87.65 | 33.479 E | -1.302 D | 26.958 | 1442.6 |
| | 88.35 | 33.498 E | -1.302 D | 26.973 | 1442.6 |
| | 89.15 | 33.506 E | -1.297 D | 26.980 | 1442.6 |
| | 89.85 | 33.514 E | -1.267 D | 26.985 | 1442.8 |
| | 90.55 | 33.521 E | -1.236 D | 26.991 | 1443.0 |
| | 91.30 | 33.536 E | -1.205 D | 27.002 | 1443.2 |
| | 92.05 | 33.546 E | -1.193 D | 27.009 | 1443.2 |
| | 92.65 | 33.557 E | -1.182 D | 27.018 | 1443.3 |
| | 93.40 | 33.566 E | -1.169 D | 27.024 | 1443.4 |
| | 94.10 | 33.581 E | -1.142 D | 27.036 | 1443.6 |

| DEPTH | PRESS | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| | 94.85 | 33.593 | E | -1.121 | D | 27.045 | 1443.7 |
| | 95.45 | 33.603 | E | -1.105 | D | 27.053 | 1443.8 |
| | 96.30 | 33.615 | E | -1.091 | D | 27.062 | 1443.9 |
| | 97.00 | 33.623 | E | -1.078 | D | 27.068 | 1444.0 |
| | 97.75 | 33.636 | E | -1.078 | D | 27.078 | 1444.0 |
| | 98.45 | 33.644 | E | -1.071 | D | 27.084 | 1444.1 |
| | 99.05 | 33.651 | E | -1.058 | D | 27.090 | 1444.1 |
| | 99.90 | 33.661 | E | -1.037 | D | 27.097 | 1444.3 |
| | 100.60 | 33.673 | D | -1.017 | C | 27.106 | 1444.4 |
| | 101.30 | 33.682 | D | -1.004 | C | 27.113 | 1444.5 |
| | 102.05 | 33.692 | D | -0.988 | C | 27.121 | 1444.6 |
| | 102.65 | 33.702 | D | -0.980 | C | 27.129 | 1444.6 |
| | 103.50 | 33.709 | D | -0.966 | C | 27.134 | 1444.7 |
| | 104.20 | 33.717 | D | -0.952 | C | 27.139 | 1444.8 |
| | 104.85 | 33.725 | D | -0.938 | C | 27.146 | 1444.9 |
| | 105.50 | 33.733 | D | -0.929 | C | 27.151 | 1445.0 |
| | 106.40 | 33.743 | D | -0.915 | C | 27.159 | 1445.1 |
| | 107.15 | 33.752 | D | -0.904 | C | 27.166 | 1445.1 |
| | 107.80 | 33.757 | D | -0.893 | C | 27.170 | 1445.2 |
| | 108.50 | 33.765 | D | -0.883 | C | 27.176 | 1445.3 |
| | 109.30 | 33.773 | D | -0.872 | C | 27.182 | 1445.3 |
| | 109.90 | 33.780 | D | -0.867 | C | 27.188 | 1445.4 |
| | 110.60 | 33.787 | D | -0.860 | C | 27.193 | 1445.4 |
| | 111.45 | 33.792 | D | -0.852 | C | 27.197 | 1445.5 |
| | 112.15 | 33.801 | D | -0.841 | C | 27.204 | 1445.6 |
| | 112.75 | 33.807 | D | -0.835 | C | 27.208 | 1445.6 |
| | 113.55 | 33.815 | D | -0.826 | C | 27.215 | 1445.7 |
| | 114.30 | 33.823 | D | -0.819 | C | 27.221 | 1445.7 |
| | 115.00 | 33.829 | D | -0.813 | C | 27.225 | 1445.8 |
| | 115.75 | 33.834 | D | -0.809 | C | 27.229 | 1445.8 |
| | 116.45 | 33.839 | D | -0.803 | C | 27.233 | 1445.9 |
| | 117.10 | 33.844 | D | -0.798 | C | 27.237 | 1445.9 |
| | 117.95 | 33.852 | D | -0.791 | C | 27.243 | 1446.0 |
| | 118.65 | 33.856 | D | -0.787 | C | 27.246 | 1446.0 |
| | 119.35 | 33.863 | D | -0.783 | C | 27.251 | 1446.0 |
| | 120.00 | 33.868 | D | -0.779 | C | 27.255 | 1446.1 |
| | 120.55 | 33.871 | D | -0.777 | C | 27.258 | 1446.1 |
| | 121.55 | 33.878 | D | -0.767 | C | 27.263 | 1446.2 |
| | 122.20 | 33.886 | D | -0.764 | C | 27.270 | 1446.2 |
| | 122.95 | 33.891 | D | -0.758 | C | 27.273 | 1446.3 |
| | 123.75 | 33.897 | D | -0.752 | C | 27.278 | 1446.3 |
| | 124.45 | 33.902 | D | -0.748 | C | 27.282 | 1446.3 |
| | 125.10 | 33.907 | D | -0.745 | C | 27.286 | 1446.4 |
| | 125.95 | 33.912 | D | -0.740 | C | 27.290 | 1446.4 |
| | 126.60 | 33.919 | D | -0.737 | C | 27.295 | 1446.5 |
| | 127.35 | 33.923 | D | -0.732 | C | 27.298 | 1446.5 |
| | 128.10 | 33.926 | D | -0.729 | C | 27.301 | 1446.5 |
| | 128.95 | 33.931 | D | -0.722 | C | 27.304 | 1446.6 |
| | 129.50 | 33.936 | D | -0.720 | C | 27.308 | 1446.6 |
| | 130.35 | 33.941 | D | -0.715 | C | 27.312 | 1446.7 |
| | 131.05 | 33.945 | D | -0.711 | C | 27.315 | 1446.7 |
| | 131.65 | 33.948 | D | -0.709 | C | 27.318 | 1446.7 |
| | 132.45 | 33.952 | D | -0.704 | C | 27.321 | 1446.8 |
| | 133.15 | 33.957 | D | -0.701 | C | 27.325 | 1446.8 |
| | 134.00 | 33.963 | D | -0.695 | C | 27.329 | 1446.8 |
| | 134.60 | 33.969 | D | -0.694 | C | 27.334 | 1446.9 |
| | 135.35 | 33.971 | D | -0.690 | C | 27.335 | 1446.9 |
| | 136.15 | 33.977 | D | -0.685 | C | 27.340 | 1446.9 |
| | 136.70 | 33.982 | D | -0.687 | C | 27.344 | 1446.9 |
| | 137.60 | 33.986 | D | -0.680 | C | 27.347 | 1447.0 |
| | 138.30 | 33.990 | D | -0.675 | C | 27.350 | 1447.0 |
| | 139.10 | 33.994 | D | -0.670 | C | 27.353 | 1447.1 |
| | 139.85 | 34.001 | D | -0.666 | C | 27.359 | 1447.1 |
| | 140.50 | 34.004 | D | -0.664 | C | 27.361 | 1447.1 |
| | 141.35 | 34.009 | D | -0.658 | C | 27.364 | 1447.2 |
| | 141.95 | 34.015 | D | -0.655 | C | 27.369 | 1447.2 |
| | 142.80 | 34.019 | D | -0.651 | C | 27.372 | 1447.3 |
| | 143.50 | 34.022 | D | -0.649 | C | 27.375 | 1447.3 |
| | 144.10 | 34.025 | D | -0.646 | C | 27.378 | 1447.3 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 144.70 | 34.030 D | -0.644 C | 27.381 | 1447.3 |
| | 145.65 | 34.036 D | -0.637 C | 27.386 | 1447.4 |
| | 146.40 | 34.042 D | -0.630 C | 27.391 | 1447.5 |
| | 147.15 | 34.048 D | -0.626 C | 27.395 | 1447.5 |
| | 147.80 | 34.051 D | -0.623 C | 27.397 | 1447.5 |
| | 148.55 | 34.058 D | -0.618 C | 27.403 | 1447.6 |
| | 149.35 | 34.062 D | -0.613 C | 27.406 | 1447.6 |
| | 150.00 | 34.065 D | -0.610 C | 27.408 | 1447.6 |
| | 150.80 | 34.072 D | -0.605 C | 27.414 | 1447.7 |
| | 151.50 | 34.077 D | -0.599 C | 27.417 | 1447.7 |
| | 152.25 | 34.085 D | -0.594 C | 27.424 | 1447.8 |
| | 152.85 | 34.090 D | -0.591 C | 27.428 | 1447.8 |
| | 153.65 | 34.096 D | -0.584 C | 27.432 | 1447.9 |
| | 154.40 | 34.101 D | -0.581 C | 27.436 | 1447.9 |
| | 155.10 | 34.104 D | -0.575 C | 27.438 | 1447.9 |
| | 155.90 | 34.111 D | -0.570 C | 27.444 | 1448.0 |
| | 156.80 | 34.117 D | -0.563 C | 27.448 | 1448.0 |
| | 157.45 | 34.119 D | -0.564 C | 27.450 | 1448.0 |
| | 158.10 | 34.121 D | -0.561 C | 27.452 | 1448.1 |
| | 158.80 | 34.124 D | -0.559 C | 27.454 | 1448.1 |
| | 159.60 | 34.129 D | -0.551 C | 27.458 | 1448.2 |
| | 160.20 | 34.136 D | -0.548 C | 27.463 | 1448.2 |
| | 161.05 | 34.143 D | -0.539 C | 27.468 | 1448.3 |
| | 161.60 | 34.146 D | -0.537 C | 27.470 | 1448.3 |
| | 162.45 | 34.153 D | -0.530 C | 27.476 | 1448.3 |
| | 163.10 | 34.159 D | -0.526 C | 27.480 | 1448.4 |
| | 163.90 | 34.163 D | -0.520 C | 27.483 | 1448.4 |
| | 164.60 | 34.168 D | -0.516 C | 27.487 | 1448.5 |
| | 165.45 | 34.176 D | -0.507 C | 27.494 | 1448.5 |
| | 166.10 | 34.182 D | -0.502 C | 27.498 | 1448.6 |
| | 166.75 | 34.188 D | -0.495 C | 27.503 | 1448.6 |
| | 167.60 | 34.198 D | -0.485 C | 27.510 | 1448.7 |
| | 168.30 | 34.205 D | -0.478 C | 27.516 | 1448.7 |
| | 169.10 | 34.213 D | -0.470 C | 27.522 | 1448.8 |
| | 169.75 | 34.224 D | -0.462 C | 27.530 | 1448.9 |
| | 170.45 | 34.232 D | -0.453 C | 27.537 | 1448.9 |
| | 171.10 | 34.243 D | -0.446 C | 27.545 | 1449.0 |
| | 171.80 | 34.249 D | -0.434 C | 27.549 | 1449.1 |
| | 172.65 | 34.265 D | -0.422 C | 27.562 | 1449.2 |
| | 173.30 | 34.274 D | -0.415 C | 27.569 | 1449.2 |
| | 173.90 | 34.282 D | -0.406 C | 27.575 | 1449.3 |
| | 174.75 | 34.294 D | -0.396 C | 27.584 | 1449.4 |
| | 175.50 | 34.305 D | -0.387 C | 27.592 | 1449.4 |
| | 176.25 | 34.312 D | -0.380 C | 27.598 | 1449.5 |
| | 176.95 | 34.316 D | -0.374 C | 27.601 | 1449.5 |
| | 177.60 | 34.325 D | -0.368 C | 27.608 | 1449.6 |
| | 178.40 | 34.333 D | -0.363 C | 27.614 | 1449.6 |
| | 179.10 | 34.338 D | -0.356 C | 27.618 | 1449.7 |
| | 179.85 | 34.347 D | -0.348 C | 27.625 | 1449.7 |
| | 180.55 | 34.354 D | -0.340 C | 27.630 | 1449.8 |
| | 181.35 | 34.363 D | -0.330 C | 27.637 | 1449.9 |
| | 182.05 | 34.372 D | -0.320 C | 27.643 | 1449.9 |
| | 182.85 | 34.381 D | -0.311 C | 27.651 | 1450.0 |
| | 183.50 | 34.385 D | -0.308 C | 27.653 | 1450.0 |
| | 184.15 | 34.391 D | -0.305 C | 27.658 | 1450.1 |
| | 184.90 | 34.396 D | -0.300 C | 27.662 | 1450.1 |
| | 185.75 | 34.400 D | -0.292 C | 27.665 | 1450.2 |
| | 186.30 | 34.404 D | -0.291 C | 27.668 | 1450.2 |
| | 187.20 | 34.410 D | -0.285 C | 27.672 | 1450.2 |
| | 187.85 | 34.412 D | -0.281 C | 27.674 | 1450.3 |
| | 188.50 | 34.416 D | -0.276 C | 27.677 | 1450.3 |
| | 189.30 | 34.423 D | -0.272 C | 27.682 | 1450.3 |
| | 190.10 | 34.425 D | -0.268 C | 27.684 | 1450.4 |
| | 190.75 | 34.429 D | -0.263 C | 27.687 | 1450.4 |
| | 191.55 | 34.434 D | -0.258 C | 27.691 | 1450.5 |
| | 192.15 | 34.437 D | -0.256 C | 27.693 | 1450.5 |
| | 193.00 | 34.440 D | -0.249 C | 27.695 | 1450.5 |
| | 193.70 | 34.448 D | -0.243 C | 27.701 | 1450.6 |
| | 194.45 | 34.452 D | -0.237 C | 27.704 | 1450.6 |

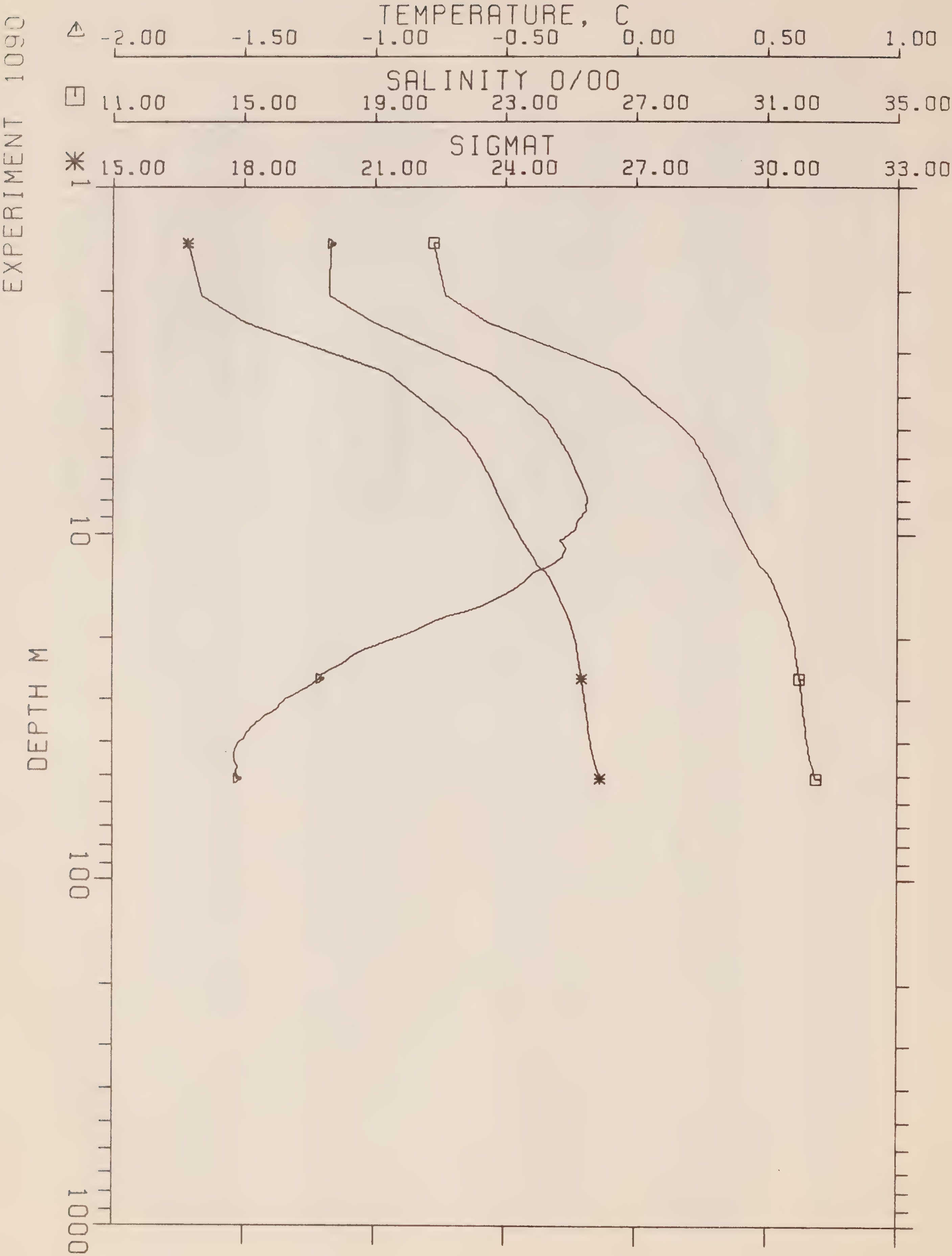
| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 195.05 | 34.458 D | -0.234 C | 27.709 | 1450.7 |
| | 195.85 | 34.462 D | -0.229 C | 27.712 | 1450.7 |
| | 196.70 | 34.468 D | -0.223 C | 27.716 | 1450.8 |
| | 197.35 | 34.470 D | -0.219 C | 27.718 | 1450.8 |
| | 198.00 | 34.474 D | -0.215 C | 27.721 | 1450.8 |
| | 198.85 | 34.479 D | -0.209 C | 27.725 | 1450.9 |
| | 199.50 | 34.484 D | -0.205 C | 27.729 | 1450.9 |
| | 200.40 | 34.487 D | -0.200 C | 27.730 | 1450.9 |
| | 201.05 | 34.491 D | -0.198 C | 27.734 | 1451.0 |
| | 201.75 | 34.493 D | -0.195 C | 27.735 | 1451.0 |
| | 202.55 | 34.496 D | -0.190 C | 27.737 | 1451.0 |
| | 203.25 | 34.502 D | -0.187 C | 27.742 | 1451.1 |
| | 203.90 | 34.505 D | -0.184 C | 27.745 | 1451.1 |
| | 204.65 | 34.508 D | -0.178 C | 27.747 | 1451.1 |
| | 205.40 | 34.511 D | -0.173 C | 27.748 | 1451.2 |
| | 206.20 | 34.514 D | -0.170 C | 27.751 | 1451.2 |
| | 206.85 | 34.517 D | -0.167 C | 27.754 | 1451.2 |
| | 207.60 | 34.521 D | -0.164 C | 27.756 | 1451.3 |
| | 208.30 | 34.523 D | -0.163 C | 27.758 | 1451.3 |
| | 209.00 | 34.523 D | -0.161 C | 27.758 | 1451.3 |
| | 209.80 | 34.527 D | -0.156 C | 27.761 | 1451.4 |
| | 210.55 | 34.531 D | -0.153 C | 27.764 | 1451.4 |
| | 211.35 | 34.533 D | -0.150 C | 27.765 | 1451.4 |
| | 212.10 | 34.536 D | -0.145 C | 27.768 | 1451.5 |
| | 212.75 | 34.539 D | -0.145 C | 27.770 | 1451.5 |
| | 213.60 | 34.541 D | -0.140 C | 27.772 | 1451.5 |
| | 214.10 | 34.542 D | -0.142 C | 27.772 | 1451.5 |
| | 215.00 | 34.544 D | -0.138 C | 27.774 | 1451.5 |
| | 215.75 | 34.546 D | -0.136 C | 27.775 | 1451.6 |
| | 216.50 | 34.549 D | -0.134 C | 27.777 | 1451.6 |
| | 217.30 | 34.550 D | -0.131 C | 27.779 | 1451.6 |
| | 217.95 | 34.552 D | -0.130 C | 27.780 | 1451.6 |
| | 218.60 | 34.551 D | -0.130 C | 27.779 | 1451.7 |
| | 219.45 | 34.554 D | -0.125 C | 27.781 | 1451.7 |
| | 220.10 | 34.557 D | -0.124 C | 27.783 | 1451.7 |
| | 220.85 | 34.558 D | -0.124 C | 27.784 | 1451.7 |
| | 221.60 | 34.559 D | -0.122 C | 27.785 | 1451.8 |
| | 222.25 | 34.560 D | -0.122 C | 27.786 | 1451.8 |
| | 223.10 | 34.559 D | -0.119 C | 27.785 | 1451.8 |
| | 223.90 | 34.562 D | -0.117 C | 27.787 | 1451.8 |
| | 224.65 | 34.563 D | -0.117 C | 27.788 | 1451.8 |
| | 225.20 | 34.563 D | -0.118 C | 27.788 | 1451.8 |
| | 226.05 | 34.563 D | -0.115 C | 27.788 | 1451.9 |
| | 226.85 | 34.566 D | -0.113 C | 27.790 | 1451.9 |
| | 227.60 | 34.567 D | -0.112 C | 27.791 | 1451.9 |
| | 228.30 | 34.569 D | -0.111 C | 27.792 | 1451.9 |
| | 229.05 | 34.568 D | -0.110 C | 27.792 | 1451.9 |
| | 229.65 | 34.571 D | -0.111 C | 27.794 | 1452.0 |
| | 230.35 | 34.571 D | -0.109 C | 27.794 | 1452.0 |
| | 231.15 | 34.573 D | -0.106 C | 27.795 | 1452.0 |
| | 231.95 | 34.574 D | -0.104 C | 27.796 | 1452.0 |
| | 232.65 | 34.575 D | -0.104 C | 27.797 | 1452.0 |
| | 233.40 | 34.577 D | -0.102 C | 27.798 | 1452.1 |
| | 234.10 | 34.576 D | -0.102 C | 27.798 | 1452.1 |
| | 234.75 | 34.576 D | -0.102 C | 27.798 | 1452.1 |
| | 235.50 | 34.578 D | -0.100 C | 27.799 | 1452.1 |
| | 236.25 | 34.579 D | -0.100 C | 27.800 | 1452.1 |
| | 236.95 | 34.580 D | -0.099 C | 27.801 | 1452.1 |
| | 237.70 | 34.582 D | -0.097 C | 27.802 | 1452.2 |
| | 238.45 | 34.583 D | -0.096 C | 27.803 | 1452.2 |
| | 239.10 | 34.582 D | -0.096 C | 27.803 | 1452.2 |
| | 239.90 | 34.584 D | -0.095 C | 27.804 | 1452.2 |
| | 240.50 | 34.584 D | -0.096 C | 27.804 | 1452.2 |
| | 241.20 | 34.584 D | -0.095 C | 27.804 | 1452.2 |
| | 242.00 | 34.586 D | -0.093 C | 27.805 | 1452.3 |
| | 242.75 | 34.587 D | -0.092 C | 27.806 | 1452.3 |
| | 243.50 | 34.589 D | -0.090 C | 27.807 | 1452.3 |
| | 244.25 | 34.589 D | -0.089 C | 27.807 | 1452.3 |
| | 244.95 | 34.591 D | -0.090 C | 27.809 | 1452.3 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 245.60 | 34.590 D | -0.090 C | 27.809 | 1452.3 |
| | 246.35 | 34.589 D | -0.088 C | 27.808 | 1452.4 |
| | 247.00 | 34.590 D | -0.090 C | 27.808 | 1452.4 |
| | 247.80 | 34.591 D | -0.087 C | 27.809 | 1452.4 |
| | 248.60 | 34.593 D | -0.086 C | 27.810 | 1452.4 |
| | 249.20 | 34.593 D | -0.087 C | 27.811 | 1452.4 |
| | 250.00 | 34.594 D | -0.084 C | 27.811 | 1452.4 |
| | 250.85 | 34.595 D | -0.082 C | 27.812 | 1452.5 |
| | 251.60 | 34.597 D | -0.080 C | 27.814 | 1452.5 |
| | 252.30 | 34.597 D | -0.079 C | 27.813 | 1452.5 |
| | 252.95 | 34.598 D | -0.079 C | 27.814 | 1452.5 |
| | 253.80 | 34.599 D | -0.077 C | 27.815 | 1452.5 |
| | 254.50 | 34.600 D | -0.078 C | 27.816 | 1452.6 |
| | 255.15 | 34.600 D | -0.078 C | 27.816 | 1452.6 |
| | 255.90 | 34.601 D | -0.077 C | 27.817 | 1452.6 |
| | 256.65 | 34.602 D | -0.077 C | 27.818 | 1452.6 |
| | 257.40 | 34.602 D | -0.075 C | 27.818 | 1452.6 |
| | 258.10 | 34.602 D | -0.074 C | 27.817 | 1452.6 |
| | 258.80 | 34.605 D | -0.074 C | 27.819 | 1452.6 |
| | 259.50 | 34.606 D | -0.074 C | 27.820 | 1452.7 |
| | 260.40 | 34.607 D | -0.071 C | 27.822 | 1452.7 |
| | 261.10 | 34.608 D | -0.071 C | 27.822 | 1452.7 |
| | 261.75 | 34.608 D | -0.071 C | 27.822 | 1452.7 |
| | 262.45 | 34.609 D | -0.071 C | 27.823 | 1452.7 |
| | 263.20 | 34.607 D | -0.068 C | 27.821 | 1452.7 |
| | 263.90 | 34.610 D | -0.070 C | 27.824 | 1452.8 |
| | 264.70 | 34.610 D | -0.067 C | 27.824 | 1452.8 |
| | 265.50 | 34.610 D | -0.066 C | 27.824 | 1452.8 |
| | 266.05 | 34.609 D | -0.068 C | 27.823 | 1452.8 |
| | 266.95 | 34.611 D | -0.065 C | 27.824 | 1452.8 |
| | 267.70 | 34.612 D | -0.064 C | 27.825 | 1452.8 |
| | 268.40 | 34.612 D | -0.064 C | 27.825 | 1452.9 |
| | 269.15 | 34.614 D | -0.064 C | 27.827 | 1452.9 |
| | 269.90 | 34.613 D | -0.061 C | 27.826 | 1452.9 |
| | 270.70 | 34.616 D | -0.061 C | 27.828 | 1452.9 |
| | 271.35 | 34.615 D | -0.061 C | 27.827 | 1452.9 |
| | 272.10 | 34.615 D | -0.060 C | 27.827 | 1452.9 |
| | 272.75 | 34.616 D | -0.062 C | 27.828 | 1452.9 |
| | 273.60 | 34.616 D | -0.058 C | 27.828 | 1453.0 |
| | 274.30 | 34.619 D | -0.061 C | 27.831 | 1453.0 |
| | 275.00 | 34.618 D | -0.059 C | 27.830 | 1453.0 |
| | 275.70 | 34.618 D | -0.059 C | 27.829 | 1453.0 |
| | 276.55 | 34.618 D | -0.057 C | 27.829 | 1453.0 |
| | 277.20 | 34.617 D | -0.058 C | 27.829 | 1453.0 |
| | 278.20 | 34.621 D | -0.052 C | 27.832 | 1453.1 |
| | 278.75 | 34.620 D | -0.055 C | 27.831 | 1453.1 |
| | 279.55 | 34.619 D | -0.052 C | 27.830 | 1453.1 |
| | 280.25 | 34.621 D | -0.053 C | 27.832 | 1453.1 |
| | 280.95 | 34.619 D | -0.053 C | 27.830 | 1453.1 |
| | 281.75 | 34.622 D | -0.052 C | 27.832 | 1453.1 |
| | 282.50 | 34.622 D | -0.051 C | 27.832 | 1453.2 |
| | 283.20 | 34.623 D | -0.051 C | 27.833 | 1453.2 |
| | 283.95 | 34.621 D | -0.050 C | 27.832 | 1453.2 |
| | 284.65 | 34.622 D | -0.051 C | 27.832 | 1453.2 |
| | 285.45 | 34.623 D | -0.049 C | 27.833 | 1453.2 |
| | 286.20 | 34.623 D | -0.049 C | 27.833 | 1453.2 |
| | 286.95 | 34.623 D | -0.049 C | 27.833 | 1453.2 |
| | 287.65 | 34.625 D | -0.050 C | 27.834 | 1453.3 |
| | 288.50 | 34.624 D | -0.047 C | 27.834 | 1453.3 |
| | 289.15 | 34.624 D | -0.048 C | 27.834 | 1453.3 |
| | 289.90 | 34.624 D | -0.047 C | 27.834 | 1453.3 |
| | 290.65 | 34.624 D | -0.046 C | 27.834 | 1453.3 |
| | 291.35 | 34.625 D | -0.047 C | 27.834 | 1453.3 |
| | 292.10 | 34.626 D | -0.047 C | 27.835 | 1453.3 |
| | 292.90 | 34.626 D | -0.045 C | 27.835 | 1453.4 |
| | 293.60 | 34.624 D | -0.045 C | 27.834 | 1453.4 |
| | 294.50 | 34.627 D | -0.043 C | 27.836 | 1453.4 |
| | 295.10 | 34.627 D | -0.043 C | 27.836 | 1453.4 |
| | 295.85 | 34.626 D | -0.043 C | 27.835 | 1453.4 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 296.65 | 34.626 D | -0.041 C | 27.835 | 1453.4 |
| | 297.40 | 34.628 D | -0.040 C | 27.836 | 1453.5 |
| | 298.05 | 34.628 D | -0.042 C | 27.837 | 1453.5 |
| | 298.80 | 34.628 D | -0.040 C | 27.837 | 1453.5 |
| | 299.50 | 34.628 D | -0.041 C | 27.836 | 1453.5 |
| | 300.25 | 34.629 D | -0.041 C | 27.837 | 1453.5 |
| | 300.95 | 34.628 D | -0.041 C | 27.837 | 1453.5 |
| | 301.60 | 34.629 D | -0.041 C | 27.838 | 1453.5 |
| | 302.35 | 34.629 D | -0.041 C | 27.837 | 1453.5 |
| | 303.20 | 34.630 D | -0.039 C | 27.838 | 1453.6 |
| | 303.80 | 34.630 D | -0.040 C | 27.838 | 1453.6 |
| | 304.65 | 34.630 D | -0.038 C | 27.838 | 1453.6 |
| | 305.35 | 34.628 D | -0.037 C | 27.837 | 1453.6 |
| | 306.25 | 34.632 D | -0.033 C | 27.839 | 1453.6 |
| | 306.65 | 34.630 D | -0.038 C | 27.838 | 1453.6 |
| | 307.60 | 34.632 D | -0.034 C | 27.840 | 1453.7 |
| | 308.25 | 34.631 D | -0.036 C | 27.839 | 1453.7 |
| | 308.95 | 34.631 D | -0.036 C | 27.839 | 1453.7 |
| | 309.70 | 34.631 D | -0.035 C | 27.838 | 1453.7 |
| | 310.55 | 34.632 D | -0.034 C | 27.839 | 1453.7 |
| | 311.20 | 34.631 D | -0.035 C | 27.839 | 1453.7 |
| | 312.00 | 34.633 D | -0.033 C | 27.840 | 1453.7 |
| | 312.65 | 34.631 D | -0.033 C | 27.839 | 1453.8 |
| | 313.65 | 34.633 D | -0.028 C | 27.840 | 1453.8 |
| | 314.10 | 34.633 D | -0.034 C | 27.840 | 1453.8 |
| | 314.90 | 34.632 D | -0.031 C | 27.839 | 1453.8 |
| | 315.65 | 34.634 D | -0.031 C | 27.841 | 1453.8 |
| | 316.15 | 34.631 D | -0.035 C | 27.839 | 1453.8 |
| | 317.10 | 34.633 D | -0.031 C | 27.840 | 1453.8 |
| | 317.90 | 34.633 D | -0.029 C | 27.840 | 1453.9 |
| | 318.55 | 34.635 D | -0.031 C | 27.842 | 1453.9 |
| | 319.20 | 34.634 D | -0.030 C | 27.841 | 1453.9 |
| | 320.05 | 34.634 D | -0.028 C | 27.841 | 1453.9 |
| | 320.70 | 34.634 D | -0.029 C | 27.841 | 1453.9 |
| | 321.55 | 34.635 D | -0.027 C | 27.841 | 1453.9 |
| | 322.35 | 34.636 D | -0.026 C | 27.842 | 1454.0 |
| | 323.00 | 34.634 D | -0.026 C | 27.841 | 1454.0 |
| | 323.70 | 34.636 D | -0.027 C | 27.843 | 1454.0 |
| | 324.45 | 34.634 D | -0.027 C | 27.841 | 1454.0 |
| | 325.20 | 34.634 D | -0.025 C | 27.841 | 1454.0 |
| | 325.90 | 34.634 D | -0.026 C | 27.841 | 1454.0 |
| | 326.65 | 34.635 D | -0.026 C | 27.841 | 1454.0 |
| | 327.40 | 34.634 D | -0.026 C | 27.841 | 1454.0 |
| | 328.05 | 34.635 D | -0.027 C | 27.842 | 1454.0 |
| | 328.80 | 34.636 D | -0.028 C | 27.842 | 1454.0 |
| | 329.65 | 34.636 D | -0.025 C | 27.842 | 1454.1 |
| | 330.40 | 34.635 D | -0.023 C | 27.841 | 1454.1 |
| | 331.10 | 34.636 D | -0.023 C | 27.842 | 1454.1 |
| | 331.90 | 34.637 D | -0.023 C | 27.843 | 1454.1 |
| | 332.65 | 34.637 D | -0.022 C | 27.843 | 1454.1 |
| | 333.40 | 34.636 D | -0.022 C | 27.842 | 1454.2 |
| | 334.05 | 34.637 D | -0.023 C | 27.843 | 1454.2 |
| | 334.70 | 34.636 D | -0.025 C | 27.842 | 1454.2 |
| | 335.50 | 34.636 D | -0.023 C | 27.842 | 1454.2 |
| | 336.35 | 34.637 D | -0.022 C | 27.843 | 1454.2 |
| | 337.10 | 34.639 D | -0.021 C | 27.844 | 1454.2 |
| | 337.80 | 34.637 D | -0.021 C | 27.843 | 1454.2 |
| | 338.50 | 34.637 D | -0.022 C | 27.843 | 1454.2 |
| | 339.30 | 34.636 D | -0.019 C | 27.842 | 1454.3 |
| | 339.95 | 34.637 D | -0.022 C | 27.843 | 1454.3 |
| | 340.65 | 34.636 D | -0.023 C | 27.842 | 1454.3 |
| | 341.45 | 34.637 D | -0.022 C | 27.843 | 1454.3 |
| | 342.20 | 34.638 D | -0.021 C | 27.844 | 1454.3 |
| | 342.90 | 34.638 D | -0.021 C | 27.844 | 1454.3 |
| | 343.70 | 34.638 D | -0.020 C | 27.844 | 1454.3 |
| | 344.45 | 34.639 D | -0.021 C | 27.844 | 1454.3 |
| | 345.20 | 34.637 D | -0.020 C | 27.843 | 1454.4 |
| | 345.95 | 34.637 D | -0.019 C | 27.843 | 1454.4 |
| | 346.80 | 34.640 D | -0.018 C | 27.845 | 1454.4 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 347.40 | 34.639 D | -0.020 C | 27.844 | 1454.4 |
| | 348.20 | 34.637 D | -0.018 C | 27.843 | 1454.4 |
| | 348.90 | 34.637 D | -0.018 C | 27.843 | 1454.4 |
| | 349.60 | 34.636 D | -0.019 C | 27.842 | 1454.4 |
| | 350.30 | 34.637 D | -0.019 C | 27.843 | 1454.4 |
| | 351.10 | 34.637 D | -0.019 C | 27.843 | 1454.5 |
| | 351.85 | 34.639 D | -0.019 C | 27.845 | 1454.5 |
| | 352.50 | 34.638 D | -0.020 C | 27.844 | 1454.5 |
| | 353.40 | 34.638 D | -0.018 C | 27.844 | 1454.5 |
| | 354.15 | 34.640 D | -0.017 C | 27.845 | 1454.5 |
| | 354.65 | 34.637 D | -0.021 C | 27.843 | 1454.5 |
| | 355.60 | 34.636 D | -0.016 C | 27.842 | 1454.5 |
| | 356.40 | 34.639 D | -0.016 C | 27.844 | 1454.6 |
| | 357.10 | 34.640 D | -0.015 C | 27.845 | 1454.6 |
| | 357.80 | 34.639 D | -0.016 C | 27.845 | 1454.6 |
| | 358.55 | 34.639 D | -0.016 C | 27.844 | 1454.6 |
| | 359.30 | 34.639 D | -0.016 C | 27.844 | 1454.6 |
| | 360.10 | 34.640 D | -0.015 C | 27.845 | 1454.6 |
| | 360.75 | 34.639 D | -0.015 C | 27.845 | 1454.6 |
| | 361.50 | 34.639 D | -0.016 C | 27.844 | 1454.6 |
| | 362.25 | 34.640 D | -0.015 C | 27.845 | 1454.7 |
| | 363.00 | 34.640 D | -0.014 C | 27.845 | 1454.7 |
| | 363.65 | 34.638 D | -0.015 C | 27.843 | 1454.7 |
| | 364.45 | 34.639 D | -0.013 C | 27.844 | 1454.7 |
| | 365.15 | 34.640 D | -0.013 C | 27.845 | 1454.7 |
| | 365.80 | 34.638 D | -0.014 C | 27.844 | 1454.7 |
| | 366.65 | 34.641 D | -0.013 C | 27.846 | 1454.7 |
| | 367.25 | 34.639 D | -0.013 C | 27.844 | 1454.8 |
| | 368.00 | 34.639 D | -0.012 C | 27.844 | 1454.8 |
| | 369.05 | 34.641 D | -0.007 C | 27.846 | 1454.8 |
| | 369.45 | 34.645 D | -0.018 C | 27.849 | 1454.8 |
| | 370.20 | 34.640 D | -0.012 C | 27.845 | 1454.8 |
| | 371.00 | 34.642 D | -0.011 C | 27.846 | 1454.8 |
| | 371.75 | 34.640 D | -0.010 C | 27.845 | 1454.8 |
| | 372.40 | 34.641 D | -0.012 C | 27.845 | 1454.8 |
| | 373.15 | 34.640 D | -0.012 C | 27.845 | 1454.9 |
| | 373.90 | 34.641 D | -0.012 C | 27.846 | 1454.9 |
| | 374.60 | 34.640 D | -0.011 C | 27.845 | 1454.9 |
| | 375.25 | 34.641 D | -0.011 C | 27.845 | 1454.9 |
| | 376.00 | 34.643 D | -0.012 C | 27.847 | 1454.9 |
| | 376.75 | 34.641 D | -0.012 C | 27.846 | 1454.9 |
| | 377.50 | 34.641 D | -0.011 C | 27.845 | 1454.9 |
| | 378.20 | 34.639 D | -0.011 C | 27.844 | 1454.9 |
| | 379.00 | 34.643 D | -0.010 C | 27.847 | 1455.0 |
| | 379.70 | 34.641 D | -0.010 C | 27.846 | 1455.0 |
| | 380.45 | 34.642 D | -0.011 C | 27.846 | 1455.0 |
| | 381.10 | 34.640 D | -0.011 C | 27.845 | 1455.0 |
| | 381.80 | 34.640 D | -0.011 C | 27.845 | 1455.0 |
| | 382.55 | 34.642 D | -0.011 C | 27.847 | 1455.0 |
| | 383.25 | 34.642 D | -0.010 C | 27.846 | 1455.0 |
| | 384.05 | 34.640 D | -0.009 C | 27.845 | 1455.0 |
| | 384.70 | 34.641 D | -0.010 C | 27.846 | 1455.1 |
| | 385.50 | 34.641 D | -0.009 C | 27.846 | 1455.1 |
| | 386.25 | 34.642 D | -0.009 C | 27.846 | 1455.1 |
| | 386.80 | 34.640 D | -0.010 C | 27.845 | 1455.1 |
| | 387.55 | 34.641 D | -0.011 C | 27.845 | 1455.1 |
| | 388.45 | 34.640 D | -0.007 C | 27.845 | 1455.1 |
| | 389.15 | 34.641 D | -0.007 C | 27.845 | 1455.1 |
| | 389.90 | 34.642 D | -0.006 C | 27.846 | 1455.2 |
| | 390.40 | 34.642 D | -0.011 C | 27.846 | 1455.1 |
| | 391.25 | 34.642 D | -0.008 C | 27.846 | 1455.2 |
| | 392.00 | 34.643 D | -0.008 C | 27.847 | 1455.2 |
| | 392.80 | 34.640 D | -0.006 C | 27.845 | 1455.2 |
| | 393.35 | 34.641 D | -0.008 C | 27.845 | 1455.2 |
| | 394.20 | 34.642 D | -0.007 C | 27.846 | 1455.2 |
| | 394.95 | 34.642 D | -0.007 C | 27.846 | 1455.2 |
| | 395.65 | 34.643 D | -0.007 C | 27.847 | 1455.3 |
| | 396.35 | 34.642 D | -0.007 C | 27.847 | 1455.3 |
| | 397.05 | 34.642 D | -0.008 C | 27.846 | 1455.3 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 397.85 | 34.640 D | -0.006 C | 27.845 | 1455.3 |
| | 398.50 | 34.641 D | -0.007 C | 27.846 | 1455.3 |
| | 399.25 | 34.641 D | -0.007 C | 27.845 | 1455.3 |
| | 400.05 | 34.643 D | -0.006 C | 27.847 | 1455.3 |
| | 400.65 | 34.642 D | -0.008 C | 27.847 | 1455.3 |
| | 401.55 | 34.642 D | -0.006 C | 27.847 | 1455.4 |
| | 402.25 | 34.642 D | -0.006 C | 27.846 | 1455.4 |
| | 403.00 | 34.642 D | -0.005 C | 27.846 | 1455.4 |
| | 403.60 | 34.642 D | -0.008 C | 27.846 | 1455.4 |
| | 404.30 | 34.642 D | -0.007 C | 27.846 | 1455.4 |
| | 405.20 | 34.642 D | -0.005 C | 27.846 | 1455.4 |
| | 405.80 | 34.641 D | -0.006 C | 27.846 | 1455.4 |
| | 406.60 | 34.641 D | -0.005 C | 27.846 | 1455.4 |
| | 407.40 | 34.642 D | -0.004 C | 27.846 | 1455.5 |
| | 408.00 | 34.642 D | -0.006 C | 27.846 | 1455.5 |
| | 408.80 | 34.643 D | -0.005 C | 27.847 | 1455.5 |
| | 409.50 | 34.643 D | -0.004 C | 27.847 | 1455.5 |
| | 410.20 | 34.643 D | -0.005 C | 27.847 | 1455.5 |
| | 410.95 | 34.643 D | -0.005 C | 27.847 | 1455.5 |
| | 411.75 | 34.641 D | -0.005 C | 27.845 | 1455.5 |
| | 412.55 | 34.644 D | -0.004 C | 27.848 | 1455.5 |
| | 413.20 | 34.642 D | -0.004 C | 27.846 | 1455.6 |
| | 413.75 | 34.642 D | -0.008 C | 27.846 | 1455.5 |
| | 414.55 | 34.643 D | -0.004 C | 27.847 | 1455.6 |
| | 415.20 | 34.642 D | -0.004 C | 27.846 | 1455.6 |


EXPERIMENT 1090
TEMPERATURE, C
-2.00 -1.50 -1.00 -0.50 0.00 0.50 1.00
SALINITY 0/00
11.00 15.00 19.00 23.00 27.00 31.00 35.00
SIGMAT
15.00 18.00 21.00 24.00 27.00 30.00 33.00
DEPTH M
1
10
100
1000

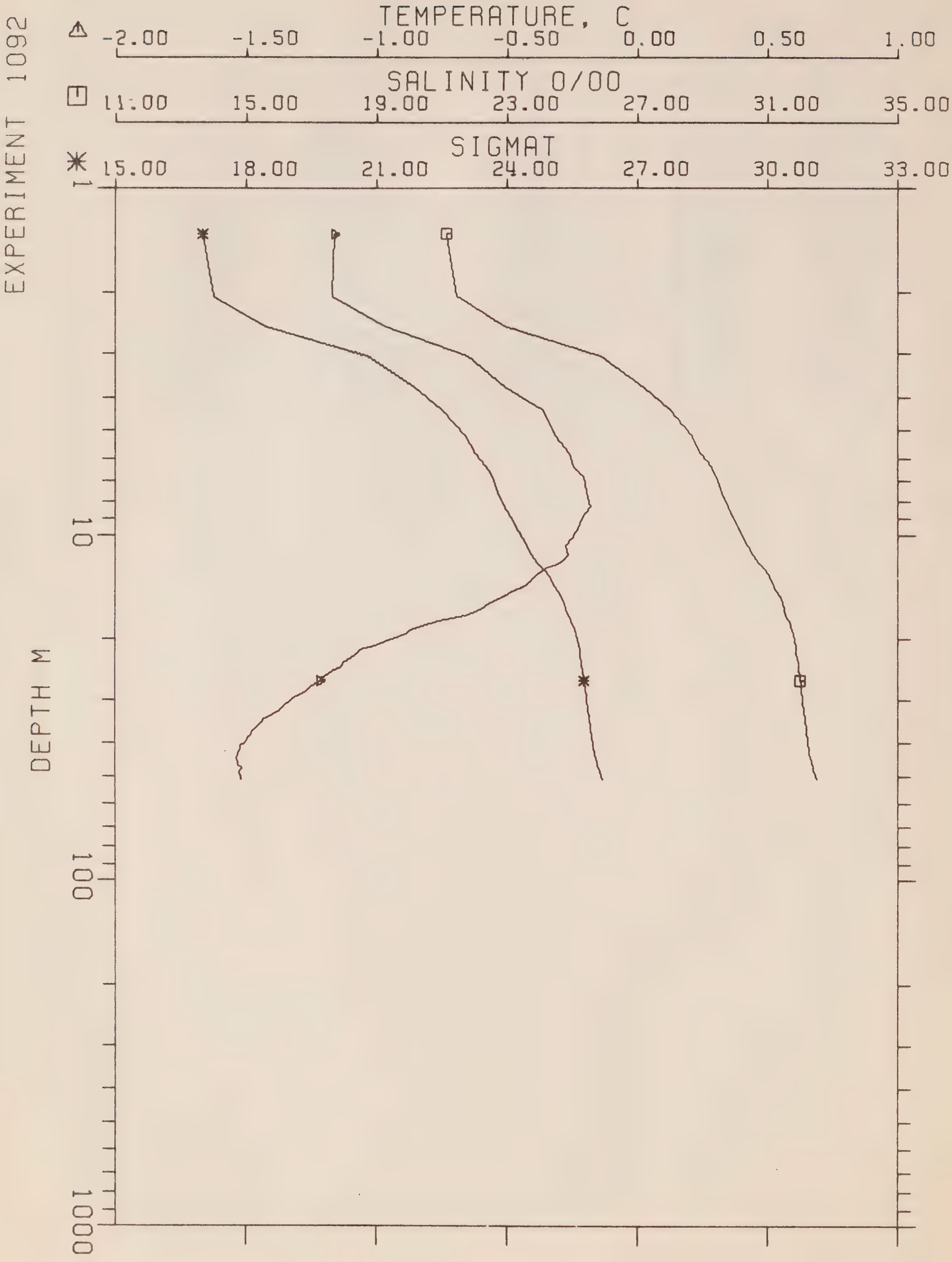
CRUISE D'IBERVILLE FIORD-75 EXPER NO. 1090

LAT N.80-35-40 LONG W.79-28-00 WATER DEPTH 534

DEPTH INCR. DATE 120475 LOCAL TIME 1414

| DEPTH | PRES | SAL | | TEMP | | SIGMAT | SOUND |
|---|---|---|---|---|---|---|---|
| | 1.45 | 20.798 | E | -1.171 | D | 16.712 | 1424.2 |
| | 2.05 | 21.173 | E | -1.177 | D | 17.014 | 1424.7 |
| | 2.45 | 22.427 | E | -1.005 | D | 18.026 | 1427.2 |
| | 3.05 | 25.032 | E | -0.725 | D | 20.124 | 1432.2 |
| | 3.45 | 26.489 | E | -0.557 | D | 21.295 | 1435.0 |
| | 4.10 | 27.418 | E | -0.429 | D | 22.041 | 1436.9 |
| | 4.70 | 28.185 | E | -0.340 | D | 22.657 | 1438.3 |
| | 5.30 | 28.752 | E | -0.295 | D | 23.112 | 1439.3 |
| | 6.00 | 29.113 | E | -0.251 | D | 23.401 | 1440.1 |
| | 6.65 | 29.349 | E | -0.231 | D | 23.591 | 1440.5 |
| | 7.25 | 29.528 | E | -0.203 | D | 23.734 | 1440.9 |
| | 7.85 | 29.686 | E | -0.187 | D | 23.861 | 1441.2 |
| | 8.55 | 29.863 | E | -0.189 | D | 24.004 | 1441.4 |
| | 9.15 | 30.021 | E | -0.219 | D | 24.132 | 1441.5 |
| | 9.70 | 30.173 | E | -0.232 | D | 24.255 | 1441.7 |
| | 10.45 | 30.351 | E | -0.290 | D | 24.400 | 1441.7 |
| | 11.05 | 30.477 | E | -0.264 | D | 24.501 | 1442.0 |
| | 11.65 | 30.634 | E | -0.281 | D | 24.628 | 1442.1 |
| | 12.35 | 30.798 | E | -0.326 | D | 24.762 | 1442.1 |
| | 12.90 | 31.018 | E | -0.389 | D | 24.941 | 1442.2 |
| | 13.55 | 31.144 | E | -0.418 | D | 25.043 | 1442.2 |
| | 14.15 | 31.232 | E | -0.452 | D | 25.116 | 1442.2 |
| | 14.85 | 31.320 | E | -0.491 | D | 25.188 | 1442.1 |
| | 15.45 | 31.420 | E | -0.538 | D | 25.270 | 1442.1 |
| | 16.10 | 31.491 | E | -0.585 | D | 25.329 | 1442.0 |
| | 16.75 | 31.563 | E | -0.646 | D | 25.389 | 1441.8 |
| | 17.35 | 31.629 | E | -0.721 | D | 25.445 | 1441.5 |
| | 18.00 | 31.689 | E | -0.787 | D | 25.495 | 1441.3 |
| | 18.65 | 31.726 | E | -0.821 | D | 25.526 | 1441.2 |
| | 19.15 | 31.765 | E | -0.857 | D | 25.559 | 1441.1 |
| | 19.80 | 31.799 | E | -0.905 | D | 25.588 | 1441.0 |
| | 20.40 | 31.832 | E | -0.949 | D | 25.615 | 1440.8 |
| | 21.05 | 31.861 | E | -1.002 | D | 25.641 | 1440.6 |
| | 21.65 | 31.881 | E | -1.043 | D | 25.658 | 1440.5 |
| | 22.25 | 31.899 | E | -1.076 | D | 25.674 | 1440.3 |
| | 22.95 | 31.921 | E | -1.101 | D | 25.692 | 1440.3 |
| | 23.65 | 31.937 | E | -1.122 | D | 25.705 | 1440.2 |
| | 24.20 | 31.954 | E | -1.151 | D | 25.720 | 1440.1 |
| | 24.80 | 31.970 | E | -1.176 | D | 25.734 | 1440.0 |
| | 25.40 | 31.986 | E | -1.198 | D | 25.747 | 1439.9 |
| | 26.10 | 32.004 | E | -1.212 | D | 25.762 | 1439.9 |
| | 26.80 | 32.020 | E | -1.228 | D | 25.775 | 1439.9 |
| | 27.45 | 32.034 | E | -1.248 | D | 25.787 | 1439.8 |
| | 28.00 | 32.046 | E | -1.268 | D | 25.797 | 1439.7 |
| | 28.60 | 32.061 | E | -1.287 | D | 25.810 | 1439.7 |
| | 29.30 | 32.080 | E | -1.316 | D | 25.826 | 1439.6 |
| | 29.85 | 32.089 | E | -1.335 | D | 25.833 | 1439.5 |
| | 30.45 | 32.096 | E | -1.348 | D | 25.840 | 1439.5 |
| | 31.15 | 32.104 | E | -1.360 | D | 25.847 | 1439.4 |
| | 31.85 | 32.111 | E | -1.368 | D | 25.852 | 1439.4 |
| | 32.40 | 32.125 | E | -1.387 | D | 25.864 | 1439.4 |
| | 32.95 | 32.138 | E | -1.405 | D | 25.875 | 1439.3 |
| | 33.65 | 32.149 | E | -1.420 | D | 25.885 | 1439.3 |
| | 34.35 | 32.162 | E | -1.435 | D | 25.895 | 1439.2 |
| | 34.95 | 32.176 | E | -1.450 | D | 25.907 | 1439.2 |
| | 35.60 | 32.187 | E | -1.460 | D | 25.916 | 1439.1 |
| | 36.20 | 32.193 | E | -1.468 | D | 25.921 | 1439.1 |
| | 36.80 | 32.200 | E | -1.477 | D | 25.927 | 1439.1 |
| | 37.35 | 32.206 | E | -1.483 | D | 25.932 | 1439.1 |
| | 38.10 | 32.218 | E | -1.489 | D | 25.942 | 1439.1 |
| | 38.75 | 32.229 | E | -1.494 | D | 25.951 | 1439.1 |
| | 39.40 | 32.238 | E | -1.503 | D | 25.958 | 1439.1 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 39.90 | 32.250 E | -1.513 D | 25.968 | 1439.1 |
| | 40.65 | 32.262 E | -1.518 D | 25.978 | 1439.1 |
| | 41.25 | 32.270 E | -1.525 D | 25.984 | 1439.0 |
| | 41.80 | 32.278 E | -1.528 D | 25.992 | 1439.1 |
| | 42.55 | 32.292 E | -1.531 D | 26.002 | 1439.1 |
| | 43.10 | 32.303 E | -1.536 D | 26.011 | 1439.1 |
| | 43.90 | 32.321 E | -1.534 D | 26.026 | 1439.1 |
| | 44.50 | 32.339 E | -1.535 D | 26.041 | 1439.2 |
| | 45.10 | 32.357 E | -1.534 D | 26.055 | 1439.2 |
| | 45.60 | 32.374 E | -1.535 D | 26.069 | 1439.2 |
| | 46.25 | 32.384 E | -1.531 D | 26.077 | 1439.3 |
| | 46.90 | 32.403 E | -1.523 D | 26.092 | 1439.3 |
| | 47.65 | 32.424 E | -1.521 D | 26.109 | 1439.4 |
| | 48.15 | 32.443 E | -1.529 D | 26.125 | 1439.4 |
| | 48.85 | 32.459 E | -1.528 D | 26.138 | 1439.4 |
| | 49.50 | 32.480 E | -1.527 D | 26.155 | 1439.5 |
| | 50.05 | 32.498 E | -1.528 D | 26.170 | 1439.5 |
| | 50.65 | 32.516 E | -1.523 D | 26.184 | 1439.6 |
| | 50.85 | 32.520 E | -1.523 D | 26.187 | 1439.6 |


EXPERIMENT 1092
TEMPERATURE, C
-2.00 -1.50 -1.00 -0.50 0.00 0.50 1.00
SALINITY 0/00
11.00 15.00 19.00 23.00 27.00 31.00 35.00
SIGMAT
15.00 18.00 21.00 24.00 27.00 30.00 33.00
DEPTH M
1
10
100
1000

CRUISE D'IBERVILLE FIORD-75 EXPER NO. 1092

LAT N.80-35-40 LONG W.79-28-00 WATER DEPTH 534

DEPTH INCR. DATE 120475 LOCAL TIME 1448

| DEPTH | PRES | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 1.35 | 21.150 E | -1.158 D | 16.996 | 1424.7 |
| | 2.05 | 21.474 E | -1.172 D | 17.257 | 1425.1 |
| | 2.50 | 22.902 E | -0.970 D | 18.409 | 1428.1 |
| | 3.05 | 25.861 E | -0.652 D | 20.791 | 1433.6 |
| | 3.75 | 27.203 E | -0.504 D | 21.870 | 1436.2 |
| | 4.35 | 27.983 E | -0.366 D | 22.495 | 1437.9 |
| | 5.15 | 28.661 E | -0.314 D | 23.040 | 1439.1 |
| | 5.80 | 28.978 E | -0.259 D | 23.294 | 1439.8 |
| | 6.35 | 29.277 E | -0.245 D | 23.533 | 1440.3 |
| | 6.80 | 29.450 E | -0.205 D | 23.672 | 1440.8 |
| | 7.55 | 29.614 E | -0.196 D | 23.803 | 1441.0 |
| | 8.30 | 29.784 E | -0.179 D | 23.940 | 1441.4 |
| | 8.90 | 29.963 E | -0.209 D | 24.085 | 1441.5 |
| | 9.55 | 30.102 E | -0.227 D | 24.197 | 1441.6 |
| | 10.20 | 30.287 E | -0.252 D | 24.347 | 1441.7 |
| | 10.70 | 30.416 E | -0.276 D | 24.452 | 1441.8 |
| | 11.40 | 30.555 E | -0.264 D | 24.564 | 1442.1 |
| | 12.00 | 30.712 E | -0.297 D | 24.692 | 1442.2 |
| | 12.60 | 30.909 E | -0.362 D | 24.853 | 1442.1 |
| | 13.25 | 31.094 E | -0.394 D | 25.002 | 1442.3 |
| | 14.05 | 31.197 E | -0.432 D | 25.087 | 1442.2 |
| | 14.60 | 31.285 E | -0.479 D | 25.160 | 1442.1 |
| | 15.10 | 31.382 E | -0.511 D | 25.239 | 1442.1 |
| | 15.70 | 31.464 E | -0.567 D | 25.307 | 1442.0 |
| | 16.35 | 31.519 E | -0.601 D | 25.352 | 1441.9 |
| | 17.15 | 31.575 E | -0.659 D | 25.399 | 1441.8 |
| | 17.70 | 31.668 E | -0.761 D | 25.477 | 1441.4 |
| | 18.25 | 31.711 E | -0.812 D | 25.514 | 1441.2 |
| | 18.80 | 31.779 E | -0.871 D | 25.571 | 1441.1 |
| | 19.40 | 31.787 E | -0.887 D | 25.578 | 1441.0 |
| | 20.25 | 31.841 E | -0.954 D | 25.624 | 1440.8 |
| | 20.90 | 31.861 E | -1.007 D | 25.641 | 1440.6 |
| | 21.40 | 31.894 E | -1.058 D | 25.669 | 1440.4 |
| | 21.95 | 31.899 E | -1.074 D | 25.673 | 1440.3 |
| | 22.60 | 31.920 E | -1.097 D | 25.691 | 1440.3 |
| | 23.30 | 31.941 E | -1.123 D | 25.709 | 1440.2 |
| | 24.05 | 31.949 E | -1.136 D | 25.715 | 1440.2 |
| | 24.65 | 31.965 E | -1.163 D | 25.729 | 1440.1 |
| | 25.25 | 31.980 E | -1.187 D | 25.742 | 1440.0 |
| | 25.75 | 31.997 E | -1.207 D | 25.756 | 1439.9 |
| | 26.45 | 32.013 E | -1.217 D | 25.769 | 1439.9 |
| | 27.05 | 32.027 E | -1.241 D | 25.781 | 1439.8 |
| | 27.60 | 32.036 E | -1.256 D | 25.789 | 1439.8 |
| | 28.40 | 32.055 E | -1.274 D | 25.805 | 1439.7 |
| | 29.05 | 32.071 E | -1.302 D | 25.819 | 1439.6 |
| | 29.70 | 32.085 E | -1.327 D | 25.830 | 1439.5 |
| | 30.30 | 32.089 E | -1.337 D | 25.834 | 1439.5 |
| | 30.75 | 32.099 E | -1.351 D | 25.842 | 1439.5 |
| | 31.35 | 32.104 E | -1.361 D | 25.846 | 1439.4 |
| | 32.20 | 32.114 E | -1.375 D | 25.855 | 1439.4 |
| | 32.85 | 32.135 E | -1.395 D | 25.872 | 1439.3 |
| | 33.40 | 32.140 E | -1.407 D | 25.877 | 1439.3 |
| | 34.00 | 32.156 E | -1.428 D | 25.890 | 1439.2 |
| | 34.75 | 32.166 E | -1.439 D | 25.899 | 1439.2 |
| | 35.40 | 32.184 E | -1.452 D | 25.914 | 1439.2 |
| | 35.95 | 32.190 E | -1.462 D | 25.919 | 1439.1 |
| | 36.50 | 32.198 E | -1.470 D | 25.925 | 1439.1 |
| | 37.10 | 32.206 E | -1.477 D | 25.931 | 1439.1 |
| | 37.75 | 32.215 E | -1.482 D | 25.939 | 1439.1 |
| | 38.40 | 32.227 E | -1.491 D | 25.949 | 1439.1 |
| | 39.20 | 32.235 E | -1.497 D | 25.956 | 1439.1 |
| | 39.85 | 32.250 E | -1.507 D | 25.968 | 1439.1 |

| DEPTH | PRESS | SAL | TEMP | SIGMAT | SOUND |
|---|---|---|---|---|---|
| | 40.30 | 32.256 E | -1.513 D | 25.973 | 1439.1 |
| | 40.85 | 32.268 E | -1.521 D | 25.983 | 1439.1 |
| | 41.60 | 32.274 E | -1.521 D | 25.988 | 1439.1 |
| | 42.30 | 32.285 E | -1.525 D | 25.997 | 1439.1 |
| | 42.90 | 32.297 E | -1.528 D | 26.007 | 1439.1 |
| | 43.60 | 32.312 E | -1.531 D | 26.019 | 1439.1 |
| | 44.25 | 32.334 E | -1.534 D | 26.036 | 1439.1 |
| | 44.80 | 32.350 E | -1.533 D | 26.050 | 1439.2 |
| | 45.55 | 32.366 E | -1.528 D | 26.063 | 1439.2 |
| | 46.20 | 32.384 E | -1.532 D | 26.077 | 1439.3 |
| | 46.75 | 32.391 E | -1.521 D | 26.082 | 1439.3 |
| | 47.30 | 32.418 E | -1.517 D | 26.105 | 1439.4 |
| | 48.10 | 32.436 E | -1.524 D | 26.119 | 1439.4 |
| | 48.65 | 32.453 E | -1.525 D | 26.133 | 1439.4 |
| | 49.25 | 32.472 E | -1.524 D | 26.148 | 1439.5 |
| | 49.70 | 32.490 E | -1.522 D | 26.163 | 1439.5 |
| | 50.30 | 32.505 E | -1.522 D | 26.175 | 1439.5 |
| | 50.75 | 32.521 E | -1.519 D | 26.187 | 1439.6 |